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ABSTRACT

The hierarchy of positions in an educational organization makes it possible to have an orderly career, which is traced out through a series of related positions. A differentiated salary schedule provides the incentive to pursue an orderly career. Barriers to an orderly career are of five types: assessment, education, seniority, experience, and personal attributes. The impact of these barriers is analyzed in the context of three school systems, the New South Wales and Western Australia departments of education and the Oregon state school system. Hierarchical advancement is portrayed in the construction of a transition matrix, showing the probability, direction, and magnitude of mobility of people within a bounded set of positions. Three types of transition probabilities in the systems are examined: entry into the network, transitions within the network, and transitions out of the network. The analysis also attends to the interaction among career opportunities, personnel policies, vacancy chains, and regeneration and growth rates. While educational institutions are the focus of the study, the theory and analysis are applicable to other organizations. (Author/JK)

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Orderly Career Opportunities

Richard O. Carlson

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1

Management of Impermanence

Organizational survival depends upon, among other things, the management of the flow of employees into and out of the organization. As veterans retire, resign, or die, replacements must be found. As positions are vacated, they must be filled. Unless the flow of employees is attended to, an organization does not survive beyond the present generation of employees.

Attending to the flow of employees is always an organizational imperative, but the difficulty of the task is variable owing to a number of factors. The management of the flow of employees in pre-collegiate educational organizations is especially problematic. The teaching force is unstable. Unlike people in many other occupations, few of those who enter teaching as a career make it a lifetime occupation. Approximately 90 percent of the males who enter teaching leave it within five years.¹ This heavily burdens school systems in recruiting teachers and also increases, above normal, the effort expended in placement and employee orientation.

Students, as recipients of the educational service, are also unstable, particularly in number. School systems must accommodate, through staffing and space, rather marked fluctuations in the school age popu-

¹ Burton R. Clark. "Sociology of Education" in R.E.L. Faris (ed.), *Handbook of Modern Sociology*. Chicago: Rand McNally and Co., 1964, p. 754.

lations. Examples are the rapid expansion of that population after World War II, and its shrinkage today. Moreover, the mobility of people today creates a student population which can not be counted on to stay put. Inner city schools are under attended and suburban schools are overflowing with students. Industrial booms and busts, here and there, alternately strain school buildings and staff or leave schools vacant and teachers looking for work. The fluctuations in the school age population and the mobility of the population make the determination of how many students will be where, at any given time, difficult and such determinations are fraught with errors.

Prior to the time education went off the gold standard, when students were promoted from grade to grade on the basis of demonstrable achievement, students often became overage in grade, did not progress automatically from grade to grade, and piled up in the lower grades. This intensified the problem of having the right number of teachers in the right place at the right time. This problem has waned with the practice of "social" or automatic promotion. Some say it is the only problem in education solved in the twentieth century.

An unstable work force and fluctuating clientele make the management of the flow of employees in educational organizations difficult and complex. So does the existence of teachers' unions, which are now able to influence conditions of work. This influence frequently results in a contract between the school system and the union which, among other things, specifies the student/teacher ratios which must obtain in the various classes of schools in order for instruction to be carried forward. The existence of such contracts, as is readily apparent, demands precision planning in an imprecise arena.

The problem is further compounded by tenure laws or administrative rules making teachers permanent employees of the school system after a limited number of years of satisfactory work, and teachers' union contracts with employee reduction clauses tightly regulating who is released first and last in case of a need for reduction of employees. The tenure laws almost bar school systems from issuing termination notices to tenured teachers. The union's staff reduction clauses seemingly never, when carried out, create a situation wherein the proper number of employees with the proper qualifications are in the proper place at the proper time. While many organizations, when

faced with a loss of clients or a slow market, have complete control over employee reduction, school systems have few degrees of freedom, given tenure laws and union contracts.

Just as school systems can not easily reduce the professional work force, neither can they withhold education from students, nor encourage students to return later when they are not so busy and crowded. State enactments deny this freedom. They charge the school systems with providing education to all children regardless of their numbers.

The problems brought on by an unstable work force, fluctuating numbers of students, a mandate to provide education everywhere, teacher tenure laws, and union contracts make the flow of employees in educational organizations a matter to which managers pay more than casual attention.

In an effort to assure that the proper number of employees of the proper ranks and qualifications are in the proper places at the proper time, school systems develop elaborate manpower flow policies. They all have three basic ingredients, a hierarchy of positions, a differentiated salary schedule, and barriers to an orderly career.

FOUNDATION FOR AN ORDERLY CAREER

In the first, all professional positions are classified, graded, and arranged in a hierarchy of roughly ascending authority. Hierarchies are rather standard, but the number of positions in them varies widely.

The hierarchy of positions in an educational organization makes it possible to have an orderly career. An orderly career is one that is traced out through a series of related positions, and the hierarchy sets up the related positions.

The second, a differentiated salary schedule, provides a gradually increasing salary from the bottom to the top of the hierarchy. The hierarchy of positions makes an orderly career possible and the differentiated salary schedule provides, in part, the incentive to pursue an orderly career. The two policies provide employees an opportunity to advance in the hierarchy, earn more money, and thereby experience career advancement and what is generally thought of as success in one's career. Together, they lay the foundation for an orderly career.

BARRIERS TO AN ORDERLY CAREER

The third, barriers to an orderly career, which must be overcome in order to ascend the hierarchy, are one of five types or a combination of them.

One career barrier involves assessment, objective or subjective, of an employee's efficiency and effectiveness. The assessment serves to rank or rate various classes of employees. The barrier holds back those whose scores are below standard and permits those to pass whose scores are up to the standard.

A second barrier is amount of formal education. Certain positions, or positions above a certain level in the hierarchy, are available only to those who have achieved a specified level of formal education and possess a degree, certificate, or diploma.

A third barrier is seniority. It regulates orderly advancement according to length of employment, or length of service in a given position.

A fourth barrier is experience. Experience barrier policies specify a time period to be spent in a given position before advancement is permitted, a sequence of positions to be held in the ascent of the hierarchy, or both.

A fifth barrier is personal attributes, be they race, sex, family background, religion, deportment, or a winning smile. Those without the proper attributes are not permitted to advance.

These three policy ingredients—hierarchy, differentiated salary schedule, and barriers to ascent of the hierarchy—are always present in educational organizations. Be it tall or flat, there is always a hierarchy of positions. Be the gap wide or narrow, there is always a differentiated salary schedule. And, there are always barriers of some type to the ascent of the hierarchy.

EFFECTS OF CAREER BARRIERS

The effects of career barriers on employees, their careers, and their containing organization are numerous. These barriers to ascent in the hierarchy each rest on obviously different assumptions. Each specifies in its own way what it takes to advance. Each suggests what policy formers believe is necessary for satisfactory job performance and

ultimately for the security, survival and success of the educational organization.

Subjective measures of performance hide from employees those criteria on which promotion is based. Thus, securing a promotion becomes somewhat of a guessing game. Moreover, subjective measures of performance, when employed as career barriers, tend to assure that a new generation of leaders will be a reasonable facsimile of the predecessors.

Like subjective measures of job performance, the use of personal attributes as a barrier to advancement creates considerable discrepancy in the characteristics of those who occupy the various levels in the hierarchy. In Oregon, for example, although more than fifty percent of the teachers are women, only 6.1 percent of the principals are women, and only .8 percent of the superintendents are women.² Similarly, a national sample shows that the three major religious groups, Protestants, Catholics, and Jews, are proportionately represented in groups of teachers, but 73.5 percent of the principals are Protestant and 87 percent of the superintendents are Protestant.³

Educational barriers separate leaders from staff by the status of more formal education as well as by position in the hierarchy. And, not incidentally, educational barriers also create a boon for institutions of higher education. In the United States, where education is widely used as a career barrier in educational organizations, "... as many as three quarters of all jobs defined as requiring college degrees are teaching jobs."⁴

When seniority and experience are used as career barriers, careers are rather predictable. Meteoric ascents of the hierarchy are impossible. The situation leads to a geriatric leadership. Moreover, the use of the experience barrier results in what Richard Hofstadter and others have labeled "restraint by recruitment,"⁵ in which the common expe-

² Patricia Ann Schmuck, *Sex Differentiation in Public School Administration*. Arlington, VA: National Council of Administrative Women in Education, 1976, p. 3.

³ Richard O. Carlson, *School Superintendents: Careers and Performance*. Columbus, OH: Charles E. Merrill Publishing Company, 1972, p. 33.

⁴ Ivar Berg, *Education and Jobs: The Great Training Robbery*. Ringwood, Victoria, Australia: Penguin Publishers, Inc., 1970, p. 177.

⁵ See Richard Hofstadter and Walter P. Metzger, *The Development of Aca-*

rience of those recruited to fill vacant posts assures the status quo.

Experience barriers also promote, on the part of advancement-seeking employees, considerable rumination about career planning as shown in *The Advancement of Spencer Button*, a novel about ascent of the hierarchy in Australian schools:

"Five years before you can get a mastership, another five before you can hope for a deputyship, five as a deputy in the country, four as a deputy in the city—that is, four before you can get a third-class school in the country; three, no four, before you can get a second-class in the country; six to a first-class in the country, then seven before you are back in charge of a place like Simmons Street. Now let us add up: five and five and five and four and four and six and seven. How much is that? Spencer fairly croaked, . . . that's forty! Forty years!"⁶

The experience barriers also assure that employees ascending the hierarchy will be geographically mobile and that the worst positions in the worst locations can be filled. Where experience barriers specify both job sequence and time period to be spent in each job, those aspiring to advance in the hierarchy must obtain the proper experience in the proper school at the proper time in order not to be left in the backwash of others ascending the hierarchy. The timing and footwork demanded to obtain the proper experience assures that the worst jobs in the worst location will be filled by those seeking the experience necessary for advancement.

IMPACT OF BARRIERS IN THREE SCHOOL SYSTEMS

In order to examine the differential impact of various combinations of career barriers on orderly career opportunities, manpower flows in three school systems—the New South Wales (N.S.W.) and West-

demie Freedom in the United States. New York: Columbia University Press, 1955, pp. 155-156, for restraint by recruitment at work in colleges; Burton R. Clark, *The Open Door College*. New York: McGraw-Hill Book Company, 1960, p. 112, for restraint by recruitment at work in a junior college; and Arthur J. Vidich and Joseph Bensman, *Small Town in Mass Society*. Garden City, NY: Doubleday and Company, 1960, p. 183, for restraint by recruitment at work in a public school.

⁶ Brian James, *The Advancement of Spencer Button*. Sydney: Angus and Robertson Publishers, 1950, p. 155.

ern Australia (W.A.) Departments of Education in Australia, and the collection of school systems in the State of Oregon, U.S.A.—will be analyzed. Because they employ different career barriers and combinations of barriers, it is possible to understand the impact of various types of career barriers on orderly career opportunities and to see the manner in which the various barriers affect manpower flows.

The focus of the analysis will be on orderly career opportunities, opportunities to move from one post to the next higher post, and the purpose is to understand how orderly career opportunities are affected by the use of various career barriers. In Chapter II, scanty details of the three school systems and full details of their career barriers are presented. Through the use of transition matrices, the orderly career opportunities in the three school systems are presented in Chapter III. Chapter IV contains an analysis of the impact of various career barriers on orderly career opportunities. Subsequent chapters maintain the focus on orderly career opportunities and treat the impact of vacancy chain lengths, regeneration rates, and organizational growth rates on orderly career opportunities.

Career Barriers

There are various barriers to advancement in the hierarchy, and each barrier has a different, telling impact on individuals in the hierarchy, and each barrier has a different, telling impact on individuals in the tracing of their orderly careers. Moreover, different combinations of barriers can be employed by different school systems, and these combinations result in distinct patterns as individuals in systems pursue orderly careers.

The impact of the barriers used in the three school systems will not be followed at all levels in the hierarchies. Attention will be strictly limited to line, administrative positions. Teachers and staff administrators face barriers in their spheres, but barriers for the line administrators are most numerous, complex, and religiously enforced, and attention here will be directed to line administrators.

The three school systems under study—Oregon, N.S.W. and W.A.—employ different combinations of barriers to advancement of line administrators. While over simplified, the differences are in the weight placed on formal education, job experience, and seniority. Oregon relies on formal education as a career barrier, but N.S.W. and W.A. emphasize experience and seniority. Among the three school systems, the manpower flows in N.S.W. and W.A. tend to be more highly

managed than in Oregon. This over-simplified, general description will become specific and concrete in the details of the barriers.

Before rehearsing the details of the barriers, it is important to fix the notion of *formal* career barriers, as opposed to informal career barriers. Formal career barriers have the force of law. As a result of discussion and debate, they have been duly and carefully codified, and recorded in the rules and regulations of the school system. Being written, they are explicit and unvarying, and, being part of the rules, they are accorded legitimacy. As rules, they are open to view and are subject to review and revision. Employers following the dictates of the barriers are only applying agreed-upon standards of the time. Adherence to the barriers sometimes has a negative impact on some individuals' careers, but failure to adhere to them would have a negative impact, of a different nature, on the careers of others. Hence, adherence to formal career barriers is watched with care by both employers and employees.

Informal career barriers do not have the force of law. They are not to be found in books of rules and regulations. They are hidden from view because they exist in minds, not rule books. Being hidden from view, they are hardly subject to review and revision, or debate. When employers use informal career barriers, they go beyond rules and regulations to add their own personal touches, their own standards which have not been shared with or agreed upon by others.

Doubtlessly, both formal and informal career barriers are used in almost all, if not all places where hiring, transferring and promoting are involved. Although it might sound cynical, it nevertheless seems true that the higher the post, the more responsibility and authority it carries, the more entry into it is regulated by informal career barriers.

Further, it seems reasonable to assume a strong negative correlation between the employment of formal and informal career barriers in any work setting. When formal career barriers are absent, informal career barriers fill the void. Highly developed formal career barriers, however, leave little or no room for informal barriers. Formal barriers drive out informal barriers.

For the obvious reason that informal career barriers are hidden from view, attention here will be devoted exclusively to formal career barriers.

CAREER BARRIERS IN OREGON

The Oregon school system, like most USA systems, is a collection of semi-autonomous school districts. Each possesses considerable autonomy, including the right to determine, recruit, and hire its own work force, and to determine the career barriers to regulate advancement. In certain aspects of manpower concerns, the Oregon districts are subject to State Administrative Rules which have the force of law. Where of concern here, such Administrative Rules only specify the educational qualifications of those in various line administrative posts in the school systems.¹ The Administrative Rules also require each subsystem to have an affirmative action plan. The objective is a staffing pattern in which women and minority group members are represented on the staff in proportion to their representation in the pool of all available applicants. As important as these guidelines are, data were not collected on sex or minority group origins of the line administrators, therefore nothing can be said here about the differential opportunities for movement of women and members of minority groups.

The State of Oregon includes 96,248 square miles and in 1976 had an estimated population of 2,341,750.² In the 1974-75 school year, 497,879 students attended the state schools.³ Like N.S.W. and W.A., much of the land in Oregon is uninhabited, however, the major city, compared with the major cities in N.S.W. and W.A., contains a much smaller proportion of the population of the state.

The school systems in Oregon contain standard administrative posts, partly because of the force of the Administrative Rules. The posts are of five types: superintendent (228), assistant superintendent (56), high school principal (166), junior high school principal (118), and

¹ The Administrative Rules are contained, among other places, in *Oregon Rules for Certification of Teachers, Specialists, and Administrators*. Salem, Oregon: Teacher/Standards and Practices Commission, 1973, pp. 54-62. The career barriers emanating from these rules were in force throughout the time period during which the Oregon data were collected. The rules were changed in 1975, replacing the high school and elementary school principal certificates with a single principal's certificate.

² *Oregon Blue Book, 1977-78*. Salem, Oregon: Oregon Secretary of State, 1978, p. 109.

³ *Ibid.*, p. 146.

elementary school principal (753). The figures are for 1974 and there are somewhat over 1,300 such posts in the state.

Each line administrator must possess the proper certificate. Those whose title contains the word "superintendent" must hold, naturally, a superintendent's certificate. The certificate is a barrier with a formal education base. To obtain a certificate, one must successfully complete a course of study, the length of which is equivalent to full-time study for one calendar year. The content is largely specified by the Administrative Rules. It can be entered into only after the completion of both bachelor's and master's degrees. The course of study, taken at a university, results not in a degree, but in a certificate.

The requirements for a high school principal's certificate and an elementary school principal's certificate are identical to those of the superintendent's certificate, with two exceptions: the course of study is equivalent to nine months full-time study, and the content of the courses varies for each certificate.

A given certificate is only for the post designated, except that the holder of either a high school principal's or elementary school principal's certificate is authorized to hold the post of junior high school principal, there being no special certificate for that post.

In Oregon, then, the career barrier to advancement in the hierarchy of line administrative posts is a formal education barrier. Movement up the rungs of the hierarchy from elementary to junior high school to high school principal to assistant superintendent to superintendent, requires three different certificates, each obtained through filling a somewhat different formal education requirement.

The education barrier is the sole career barrier. Experience and seniority do not regulate manpower flows. Performance records can be maintained by the school systems, but they do not constitute a formal career barrier.

CAREER BARRIERS IN NEW SOUTH WALES

N.S.W. contains 309,433 square miles with a population, in 1971, of 4,601,180 of which 2,786,000 resided in the capitol city of Sydney.⁴

⁴ *Yearbook of Australia*. Australian Bureau of Statistics, Canberra ACT, 1977, p. 143.

Like Oregon, much of the state is uninhabited but more than half of the people reside in one city.

Public, pre-collegiate education in N.S.W. is under the control of, and provided by one school system, the N.S.W. Department of Education. In 1975, 789,126 pupils were enrolled in the state schools.⁵

The line administrative positions in the school system are of four kinds: primary school principals, central school principals, secondary school principals, and higher officers. Each of these four positions, except secondary school principals, had subdivisions with a total of 19 discrete positions with 1862 occupants in 1977. In 1974 the number was 1831. The titles and number of positions in 1977:

- Director General (1)
- Deputy Director General (1)
- Assistant Director General (3)
- Director (5)
- Assistant Director (3)
- Regional Director of Education (11)
- Assistant Regional Director of Education (11)
- Staff Inspector (13)
- Inspector of Schools (59)
- Secondary Inspector, Central Panel (60)
- Region Secondary Inspector (11)
- Inspector Resident in Region (8)
- Secondary School Principal (337)
- Class I Central School Principal (13)
- Class II Central School Principal (56)
- Class III Central School Principal (11)
- Class I Primary School Principal (311)
- Class II Primary School Principal (478)
- Class III Primary School Principal (434)

Primary and central schools are classed according to enrollment. Class I schools are the largest, enrolling more than 500 students. Central schools are basically primary schools which incorporate an incomplete secondary school unit. Central schools are invariably located in the country. In addition to the above positions, there were almost

⁵ *Report of the Minister for Education for 1975*. Department of Education. N.S.W., Sydney, 1976, p. 6.

450 Class IV primary schools, each headed by a teacher-in-charge. Such schools enrolled fewer than 35 pupils and were basically one-room schools. Teacher-in-charge positions were not considered line administrative positions and do not enter into the analysis. Likewise dropped from consideration were the few positions of principal of a demonstration school and principal of the correspondence school, for such positions were outside the normal promotion schemes.

The career barriers employed in N.S.W. are different for each of the three types of positions.⁶ The career barriers for higher officers are least complex. Those positions, above the level of secondary school principal and ranging through twelve positions from regional secondary inspector to director general, are filled "by invitation," as it is said. That is, vacancies are made public, applications are accepted and interviews are conducted, but the filling of the post is not regulated by formal career barriers. Entry into the jobs classified as higher officer, then, is unfettered by formal career barriers, as is movement from one higher officer position to another.

Career barriers for secondary, central, and primary principals are numerous and complex. The barriers are expressed in the rules and regulations which govern promotion lists and the department's seniority determination rules. By type, the formal career barriers for the positions are subjective measures of performance, seniority, and experience, three of the four types of formal barriers.

The position of secondary school principal is a single-status position. The secondary schools are not classified by size and the same salary is paid all secondary school principals. There is no education barrier for the position. A university degree is not required for the lowest level secondary school teachers, however, it is required for advancement beyond that rank to the other positions which are stepping stones to the principalship in the secondary service.

The career barriers are integrated into promotion lists and seniority rules. The secondary service, as it is called, has four promotion lists.

⁶ The rules and regulations regarding career barriers in N.S.W. are found in their fullest form in *Handbook-Instructions and Information for the Guidance of Teachers, Book 2*. N.S.W. Department of Education, Sydney. Third edition 1975 revised impression (1977). Brief versions appear with some frequency in the *N.S.W. Education Gazette*. N.S.W. Department of Education, Sydney. Such as in the *Education Gazette*, No. 11 of 1977. July 5, 1977.

The first promotion list, the lowest list, contains in rank order the names of teachers whose qualifications and efficiency, determined by systematic routines carried out by inspectors, are deemed sufficient to merit such placement.⁷ The second promotion list contains the names of teachers deemed most suitable for appointment as subject master or mistress, special master or mistress, district guidance officer, and mistress in charge of girls. The third lists those deemed most suitable for appointment as deputy principal of a secondary school. The fourth list, the top promotion list, ranks those most suitable for appointment as principal.

In order to have one's name placed on a list, one must meet a time-in-position requirement and be judged upon inspection as satisfying the efficiency and effectiveness requirements for promotion to the given promotion list. The time-in-position requirement is different for each list. One may request inspection for list 2 after completing a period of service and initial training which total nine years. One may request inspection for list 3 when one has completed four years of service in one of the positions specified on list 2. One may request inspection for list 4 when one has completed two years of service in the position specified on list 3. Further, these time-in position requirements are stretched somewhat in that lists 3 and 4 are reconstituted only every other year, while list 2 is reconstituted once every year.

The inspections⁸ are by a single inspector or a panel of inspectors.

⁷ The first promotion list was temporarily abandoned on January 1, 1973 because it was thought to serve no useful purpose. *Assessment, Progression of Teachers and Evaluation of Schools: Manual of Advice*. Department of Education, N.S.W., 1973.

⁸ A detailed description of the inspection routine can be found in Fenton Sharpe, *Selecting a High School Principal in the U.S. and Australia: A Comparative Case Study*. Oregon School Study Council Bulletin, Vol. 19, No. 9, May 1976. Criticism of the inspection system is commonplace. Australians are seemingly inclined to level harsh criticisms such as "[The inspection system is based on] rigid principles of conformity, the prevalence of which cannot be justified in a democratic state." G. R. Eastwood, "The Inspectorate in N.S.W.—A Critical Comment." *Journal of Educational Administration*, Vol. 2, No. 2, 1964, p. 71. Foreign observers are less harsh in their criticism and often resort to guarded allusions. "[The inspection system is preoccupied with] maintaining a smoothly running craft on an even keel." Freeman Butts, *Assumptions Underlying Australian Education*. Melbourne: Australian Council of Educational Research, 1971, p. 64.

An inspection of efficient and effective performance must be passed satisfactorily before one is placed on any of the promotion lists. The inspection yields one of three results: satisfying requirements for promotion, satisfying requirements for present position and status, and not satisfying requirements for present position and status. There is no rating or ranking of those inspected. If one fails to win a report for promotion, one can not request a second inspection for two years.

Placement on a promotion list is determined by the director general on the recommendation of a promotion list committee which examines all applications. An appeal process is available for those grieved by their placement.

One's standing on a promotion list is very important because vacant positions are filled from the top of the lists. Six factors are used successively to determine standing on the promotion lists:

- (1) seniority of position held (the seniority of the positions conforms to their listing on the promotion lists specified above)
- (2) length of time in position
- (3) length of time on the promotion list
- (4) salary at the time of placement on the promotion list
- (5) length of employment with the school system
- (6) age.

Here is how these factors are used. For example, the fourth promotion list contains the names of those holding positions of secondary deputy principal and secondary principal. The first factor, seniority of position, gives all principals a higher standing on the list than any deputy principal. In cases of equal seniority of position, the higher ranking would go to the person who had been a principal the longest. In cases in which seniority of position and length of service as principal were equal, the highest ranking would go to the person who had been on the fourth promotion list the longest.

The career path to the position of secondary principal, as can be seen, is long and traversed in a lock-step manner. To secure a post as secondary principal, one must first find one's way toward the top of the listing of deputy principals on the fourth promotion list. The sequence of positions to be held is specified. To be eligible to be a principal, one must serve at least two years as deputy principal, and for that one must serve at least four years as a subject master or mis-

stress. Prior to that one must serve as a teacher for at least five years.

Gravitation toward the top of any promotion list is assured by the passage of time as those above one on the list take up vacated posts which are on the next higher promotion list.

Besides waiting for time to pass there is another way to advance one's ranking on a promotion list. For purposes of illustration, consider promotion list 4 which contains the names of principals and deputies. When a vacancy for a principal occurs, the appointment will go to the highest-ranked person on list 4 who *applies* for the post. If a principal applies, he or she will get the post ahead of any deputy principal. If a principal does not apply, the appointment will be awarded to the highest-ranked deputy who applies. If, however, the vacancy is in an undesirable location, perhaps no principal or high-ranked deputies will apply. In such a case, a lower-ranking deputy could be awarded the post and thereby leap over those ranked higher on the list.

It is the prospect of advancing in this accelerating manner that provides the assurance in N.S.W. that the least desirable positions in the least desirable places will be filled.

The career barriers can be seen in operation in the promotion lists. The experience barrier is of the lock-step type with time-in-position requirements. The positions to be held enroute to becoming a secondary principal are specified by the promotion lists. The career barrier of performance judgements comes into play in promotion from list to list, and seniority comes into force when standing on a particular list is an issue.

Among primary and central schools there are six types of positions with three statuses. Class I primary and central school principals earn identical salaries and are of the same status. Class II primary and central school principals earn the same salary, and so on. Central school principals, however, are awarded a bonus because of the incomplete secondary unit.

The career barriers related to primary and central school principalships are identical. Moreover, the career barriers for these two positions differ but little from the career barriers for secondary principals. While there is no formal educational career barrier, the barriers of performance ratings and seniority are the same as those for secondary

principals, there being just one set of seniority rules in N.S.W. (those rules shown on page 15. Likewise, the career barrier of experience is the same for all types of principals—lock-step experience with time-in-position requirements—with the exception that in the primary service the time-in-position requirements are shorter, seven years for the first list and one year in position on the other lists.

The career path to principal of a Class I primary or central school is regulated in exactly the same way as the path to a secondary school principal. Four promotion lists are used to regulate eligibility. The four lists, however, relate to somewhat different positions, because of different internal structures of primary and secondary schools. The first promotion list, the lowest list, is for deputy master or mistress, the second list is for Class III principals and the third and fourth lists are for Class II and Class I primary or central school principals. Just as those aspiring to the position of secondary school principal must move through lower positions in lock-step fashion, so must those aspiring to be a Class I principal.

Because standing on a promotion list is first determined by seniority of position held, secondary school deputy principals, as has been noted, can leap over other deputies on the list by becoming a secondary principal in a location which is not appealing to those with better standing. Similarly, a Class III primary or central school principal, for example, who has a relatively low standing on the promotion list can bypass those above by filling a Class II school vacancy which has no appeal to those ranked higher. This prospect of leaping over people ranking higher on a promotion list provides the assurance that principals will be found for primary and central schools located in the least desirable areas.

CAREER BARRIERS IN WESTERN AUSTRALIA

W.A., containing 975,920 square miles, is three times the size of N.S.W. and ten times the size of Oregon. In 1971, this vast area had 1,030,469 inhabitants, 641,800 of whom lived in Perth, the capital city.⁹ While very disparate in size, the three states have in common the characteristic of large uninhabited areas and the majority of people residing in a small geographic area.

⁹ *Year Book of Australia*: Australia Bureau of Statistics. Canberra, ACT, 1977, p. 143.

Public, pre-collegiate education in W.A. is under the control of, and provided by a single school system—the W.A. Department of Education. In 1975, 195,288 pupils were enrolled in the state schools.

The line administrative posts in W.A. are of fourteen types. Position titles and number of positions in 1977 follow:

- Director General (1)
- Deputy Director General (1)
- Assistant Director General (2)
- Director (4)
- Assistant Director (6)
- Superintendent (21)
- Senior High School Principal (58)
- High School Principal (10)
- Class I District High School Principal (23)
- Class II District High School Principal (29)
- Class IA Primary School Principal (41)
- Class I Primary School Principal (178)
- Class II Primary School Principal (76)
- Class III Primary School Principal (126)

Total number of positions was 576 in 1977, up from 567 in 1974

As in N.S.W., Class IV primary schools exist in W.A. but they are not taken into consideration because they are essentially one-room schools. Senior high schools offer five years of instruction, and high schools offer three years. District high schools enroll both primary and secondary school students, but offer very limited instruction at the secondary level. Enrollment determines the classification of district high schools. Class, among primary schools, is also determined by enrollment, with the classification of IA going to schools enrolling more than 600 students.

As in N.S.W., higher officers, those holding posts of superintendent and above, are appointed by invitation, and for them there are no formal career barriers.¹⁰

Also, as in N.S.W., the career barriers for the position of principal are imbedded in the various promotion lists and methods of calculating standing on the lists.

¹⁰ The rules and regulations governing careers in W.A. are found in their fullest form in *Education Act Regulations*, 1960, extracted in Government Gazette No. 20, March 19, 1971.

The promotion positions in the secondary service in W.A. are senior master or mistress, deputy principal for each of the types of secondary schools, and principal for each of the types of secondary schools.

Unlike N.S.W., the experience barriers in W.A., for secondary school principals, are not the lock-step variety; service in alternate posts can be used to satisfy the experience barrier. The experience barrier for senior high and high school principals is met in one of several ways: five years experience as a deputy principal of a high or senior high, with two of the years being spent in a school of more than 600 enrollment; two years as a principal of a Class I district high school; ten years teaching service plus two years as a senior lecturer in a teachers' college; five years of service made up of service both as a deputy principal of a high or senior high school and as principal of a Class I district high school.

The experience barrier for the Class I district high school principal also provides alternate experience routes to the post. To be eligible one must serve two years as principal of a Class II primary or Class II district high school; two years as a deputy principal of a high or senior high school; ten years teaching plus two years as a principal advisory teacher; ten years teaching plus two years as a senior lecturer A in a teachers' college; ten years teaching plus five years as a lecturer A in a teachers' college.

The experience barrier for the post of Class II district high school principal is met by: eight years service, including two years as a Class III primary school principal; two years as a deputy principal of a district high school; two years as a senior master or mistress; or two years as a deputy principal of a Class IA primary school.

In comparing the secondary school promotion lists and their operation in N.S.W. and W.A., two differences are notable. The experience barriers in N.S.W. can be met only by moving through a specific sequence of positions in lock-step fashion but the experience barriers in W.A. can be met in more than one way. In W.A. experience barriers for some secondary school principalships can be met by experience as a primary principal or deputy, but in N.S.W. the experience barriers for the secondary school principal are met only by secondary school experience.

In addition to experience barriers, W.A. also has seniority barriers for secondary school principals which come into force in determining standing on the various promotion lists. The first factor in determining placement on a promotion list is seniority. Regardless of all other possible considerations, those placed on a promotion list now are higher on the list than those placed on it in the future. For those placed on a secondary promotion list in the same year, standing on the list is determined by length of service in one of the several positions which are stepping stones to the position specified by the list. In cases in which year of placement on the list and length of service in the specified positions are identical, rank is determined by total length of service to the department.

The career barriers for secondary school principals, in sum, are experience in one of several specified positions, and seniority, measured in several ways. There is no education or performance rating career barrier.

The career barriers for primary principals in W.A. are somewhat different from those for secondary principals. A barrier of education stands between the principal in Class III and the principal in the other classes of primary schools. The education barrier is met for the Class II, I, and IA school principal with the acquisition of a teacher's higher certificate, a level of formal education below a university degree but above that of the teacher's certificate required for classroom teaching.

Unlike the experience barriers for secondary school posts, that for primary school principals is of the lock-step type. To be a Class II school principal, one must serve two years as a Class III principal. To be a Class I school principal, one must serve two years as a Class II school principal, and so on. Thus, movement from one class school to another is regulated in lock-step fashion, and the minimum time span between moves is specified.

Standing on the various primary promotion lists is determined first by year of placement on the list, as it is for W.A. secondary principals. For those placed on the list in the same year, standing is then determined by relative seniority marks, the higher marks going to those who have served the department longest, and certificate marks, with the highest marks going to those with the most formal, job-related education. If competitors rank equally the job will be awarded by lot.

Placement and ranking on the promotion lists are made by the director general upon the recommendation of promotion list committees. A grievance process is available for those grieved by their placement.

To whom a position is awarded is determined by standing of the promotion lists, with one important exception. The director general may award every third vacant primary principalship without regard to the promotion lists. Nomination for these so-called "special promotions" are made annually by several superintendents.

Special attention has been paid to the matter of transferring from one grade position to the same grade position (lateral transfers) in W.A., undoubtedly because of the varied features of the landscape. Transfer lists as well as promotion lists are maintained. Standing on the transfer lists is determined in the same way as is standing on the promotion lists.

Two additional rules are employed to regulate lateral transfers. One is that transfers have priority over promotions. If the first ranked person on the senior high school promotion list and a senior high school principal both apply for a vacant position as senior high principal, the post will be awarded to the one applying for the lateral transfer. Although N.S.W. does not have transfer lists, the promotion list produces the same result: priority is given to transfers.

The other rule for lateral transfers in W.A. is directed to the features of the landscape. All schools are classified as inner metropolitan schools, outer metropolitan schools and country schools with more than 600 students, and country schools with fewer than 600 students. A lateral transfer within the inner metropolitan schools is possible only after five years in position. Lateral transfer within the other two classifications is possible after three years in a position. Lateral transfer across these classifications of schools is not regulated by time-in-position. This rule slows down lateral transfers in the inner metropolitan area, thereby giving those in the other regions a great chance to return to Western Australia's one metropolitan area, Perth. Increasing this chance, to some unknown degree, is another rule which states that a person who has less than twenty years of service and has spent no less than five consecutive years of service in the metropolitan or other favorable area can be ordered by the director general to the country so that someone there can return.

The combinations of career barriers in the three school systems are complex, varying from state to state, and for different positions within two of the states.

On a continuum from unmanaged to managed manpower flows, it is clear that Oregon stands toward the unmanaged end of the continuum with the employment of only education barriers. Next comes W.A. with experience and seniority barriers which can be negated by the director general through his or her power to fill every third primary school vacancy without regard to promotion lists. At the other end is N.S.W. with its unrelieved subjective measures of performance, seniority, and experience barriers.

It is possible to fix the nature of the barriers in the three states only by indicating their weight or the order in which they enter promotion issues for school principals.

Education is the sole formal career barrier in Oregon. To be a principal, the proper certificate is needed: one for the secondary level or one at the elementary level. Movement from one level to the other requires both certificates.

Seniority, experience, and performance rating are the formal career barriers for principals in N.S.W. For initial entry into the lock-step positions leading to either secondary or Class I primary school principal, the first weighted career barrier is length of service and seniority. After initial entry to the promotion position, the weight falls on experience in the proper post, then on subjective measures of efficiency, last on various reading of seniority.

Seniority, experience, and education, with the latter applying only between Class III and II primary principalships, are the formal career barriers for principals in W.A. For initial entry into the chains of positions leading to senior high or Class IA primary school principal, the weight is first placed on seniority. Then, the weight falls on experience in the proper post, with several posts being specified for secondary principals but only one for primary principals. Then, for primary principals the weight falls on seniority and then on seniority and education combined. For secondary principals the weight then falls on seniority barriers, with several measures being taken.

Orderly Career Opportunities

Advancement in a hierarchy depends on surmounting the career barriers. The career barriers, the criteria for an orderly progression through a set of related positions, state what is required to have an orderly career.

By regulating an individual's advancement in a hierarchy, career barriers regulate all movement from position to position in a hierarchy and give such movement a distinctive pattern. Such movement patterns can be detected, portrayed, and examined by constructing a transition matrix which shows the probabilities, over time, of movement from one position to another.

A transition matrix shows the *probability, direction, and magnitude* of mobility of people within a bounded set of positions. Moreover, a transition matrix, in part, captures the dynamics of mobility by focusing, not solely upon individuals, but upon both positions as well as individuals as they occupy those positions over time. By contrast, a focus solely on individuals who move within a bounded set of positions loses the dynamics of mobility, because it ignores the fact that an individual's movement in an occupation implicates other individuals who are holding jobs in the occupation.

All movements in a bounded set of positions are dynamically inter-related, and a transition matrix captures this dynamic. It directs atten-

tion to interrelated flows *in, within, and out of* a bounded set of positions.

The *interrelated* nature of manpower flows is easily acknowledged and demonstrated. Consider the U.S. Supreme Court for illustrative purposes. No one has a chance to become a Supreme Court Justice unless an incumbent vacates a position. This shows the interrelated nature of flows in and out of the set of positions. The fact that no Supreme Court Justice has a chance to become Chief Justice unless the Chief Justice vacates the position shows the interrelated nature of flows within and out of a bounded set of positions.

By capturing the dynamics of interrelated flows, a transition matrix displays patterns of the movements and depicts the impact of the various career barriers, on orderly career opportunities.

The first step in constructing a transition matrix is to identify the bounded set of jobs and define the population of positions to be considered. To see movement in, within, and out of a set of positions it is necessary, of course, to limit the field of positions considered. The positions considered constitute a bounded set; they are arbitrarily walled-off, so to speak, from all other positions. The bounded set of positions will be referred to as a network.

The second step is to determine the occupants of the positions in the network for a multiple sequence of years and to note the elimination and addition of positions over time.

The third step is to compare those who held the positions in, say, year 1 with those who held the positions in year 2 and to record whether the job holders of year 1 stayed in position from year 1 to year 2, moved from one position to another position in the network, or moved out of the bounded set of positions. These recorded details yield probabilities, for each position, of individuals staying in each position, moving from one position to any other, and of moving out of the network. The recorded details also permit a determination of the number of people who enter the network during a certain time, their point of entry, or the positions they came to occupy.

The fourth step is to take a number of readings described in step 3 and then to determine the mean of the probabilities obtained and the mean of the entry details, letting such means represent the transition probabilities of the bounded set of positions.

Transition matrices of the three school systems will be compared in order to see the impact of the different career barriers on orderly career opportunities.

For purposes of comparison it was necessary to identify similar sets of positions in the three school systems and direct attention to those similar sets of positions. The rule used to determine the job sets in each system, as indicated above, was that of being a *line* rather than staff management position. Because of the vagueries of position definitions in the three school systems, positions in the hierarchy above the level of principal were sometimes difficult to classify. Fortunately, however, the bulk of the positions in each of the three school systems were principalships of one kind or another and it will be with these positions where the analysis has its greatest comparative force.

What follows will be, in turn, some notes on the construction of a transition matrix, a transition matrix for each system, and a discussion of their notable features.

TRANSITION PROBABILITIES IN OREGON

In Oregon, five positions, as shown above, were identified as line administrative positions: superintendent, assistant superintendent, high school principal, junior high school principal, and elementary school principal. The number of such positions was 1348 in 1966 and 1321 in 1974. Most lost positions were elementary school principalships.

In each of the subsystems in Oregon these five positions form a tight hierarchy backed by salary schedules. The firmness of the hierarchy diminishes, however, when Oregon subsystems are compared, because they vary so much in size. In larger subsystems, some elementary school principals have a larger salary than do superintendents in some small subsystems.

The Oregon transition matrix, shown in Table I, was constructed with the aid of the *Oregon School Directory*, an annual publication of the Oregon State Department of Education. The directory lists each of the positions of concern as well as the occupants of the positions.

The matrix was built from the listings of positions and people from the school years 1966-67 through 1974-75. The means used to represent the transition probabilities of superintendents and assistant

superintendents were derived from the nine year-to-year readings. The means for the various principalships were derived from a 50 percent random sample of all such positions over the nine year-to-year readings.

Table I presents the transition probabilities in Oregon.¹ The first five rows as well as columns represent the five positions as shown in the table code. The left hand margin indicates the position of origin at time 1 and the top margin shows the position of destination at time 2. One transition probability, that of staying in position from one year to the next is shown on the diagonal of the table, in the boxes headed by the same code number. The box at the intersection of row 3 and column 3, for example, shows the number .8283. This is the probability, 828 chances out of 1,000, of a high school principal staying in position from one year to the next. Where row 3 intersects with columns 1, 2, 4, and 5 are shown the probabilities of the high school principal moving to another position in the network. The intersection of row 3 and column 1 shows the probability of .0224, or 22 chances in 1,000, of a high school principal moving to superintendent from one year to the next. Thus, while the intersections of the same numbered rows and columns show the probabilities of staying in position, the intersection of rows with columns of a different number show the probability of moving from one position to another.

Column 6 shows the probability of making a lateral move, a move from one position to another position carrying the same title. The intersection of row 3 and column 6, for example, shows the probability of a high school principal moving from one year to the next to another high school. That probability is .0168, or about 17 chances in 1,000.

Column 7 shows yet another probability, that of movement out of

¹ For other models of movement within organizations, clergy, industrial organizations, civil servants, and state troopers, see Harrison C. White, *Chains of Opportunity: System Models of Mobility in Organizations*. Cambridge, MA: Harvard University Press, 1970; Isadore Blumen, Marvin Kogan, and Philip McCarthy, *The Industrial Mobility of Labor as a Product Process*. Ithaca, NY: New York State School of Industrial and Labor Relations, 1955; Pauline S. Sales, "The Validity of the Markov Chain Model for a Branch of the Civil Service." *The Statistician*, Vol. 20, 85-110, 1971; and Shelby Stewman, "Two Markov Models of Open System Occupational Mobility: Underlying Conceptualizations and Empirical Tests." *American Sociological Review*, Vol. 40, 298-321, 1975.

TABLE I
Oregon Transition Matrix
Destination Position at Time 2

Origin Position at Time 1	1	2	3	4	5	6	7
1	.815	.003	.0006		.0012	.0459	.1342
2	.0468	.8639				.0020	.0873
3	.0224	.0028	.8283	.0084	.0028	.0168	.1236
4			.0091	.8326	.0091		.1492
5	.0118	.0006	.0012	.0108	.8614	.0153	.0983
6	17	5	22	9	90		

CODE:

Rows and Columns 1-5

1. Superintendent
2. Assistant Superintendent
3. High School Principal
4. Junior High School Principal
5. Elementary School Principal

Columns 6-7

6. Lateral move
 7. Out of Network
- Row 6. Number entering network

the bounded set of positions, for whatever reason—death, resignation, retirement. In row 3 and column 7 the probability is .1236, or 124 chances in 1,000, that a high school principal will leave the bounded set of positions from one year to the next.

Finally, row 6, as it intersects with columns 1 through 5, shows, not a probability, but the number of people, from wherever, who enter the network by position. The intersection of row 6 and column 3 shows that 22 people, who have not formerly held any position in the network, become high school principals each year. Note that the probabilities in all rows except the bottom one add to 1.00.

All matrices presented herein have exactly the same format and are read in exactly the same manner.

Within Transitions

Most notable about movement within the bounded set of positions in Oregon is the modest size of the probabilities. The largest probabilities are .0459 for superintendents moving from one superintendency to another, and .0468 for assistant superintendents becoming superintendents. These probabilities are merely about 46 chances in

1,000 in a year. Other transitions within the network pale beside even these modest probabilities, and are rather insignificant as far as chances go. None exceed 22 chances in 1,000 and most are half that.

Also notable about the matrix is the magnitude of the transitions. Both high and elementary school principals move from their respective positions to every other position in the network. Moving from elementary school principal to high school principal requires a different administrative certificate. The same is true for the elementary or high school principal becoming a superintendent. Nevertheless, moves of such magnitude, requiring as they do a different certificate, do occur, but not with great frequency.

The direction of the transitions within the network displays contradictory evidence about the existence of a firm hierarchy of positions across all subsystems in Oregon. Note that the greatest probability of moving to a superintendency is held by assistant superintendents and that the probability diminishes progressively, except for the junior high school principals, as one moves progressively down the hierarchy. However, a high school principal has equal chance of advancing to the position of assistant superintendent and retreating to the position of elementary school principal. All of the transition probabilities in rows and columns 1 through 5 which are not on the diagonal total .1326. Those probabilities to the right and above the diagonal represent retreats down the hierarchy and sum to .0271, and those to the left and below the diagonal represent advancements in the hierarchy. They sum to .1055. Thus, about 20 percent of the moves are demotions and about 80 percent are promotions.

The next to largest transition shown within the network is that of lateral moves of superintendents. The details of these transitions show that 73 such lateral moves were made from 1966 to 1974. The lateral moves are best described as patternless or random, and mainly involve movement from one small school system to another. The search for a pattern to the transitions entailed an examination of the gain in the size of the student population, an indicator of salary,² and the geographic nature of the moves.

² See W. S. Mason and Neal Gross, "Intra-Occupational Prestige Differentiation: The School Superintendency," *American Sociological Review*, Vol. 20 (June, 1955).

As for change in student population, the range was from -2,048 to +9,348, with a median of 160 and a mean of 351. In 32 percent of the moves there was a loss in student population. In 61 percent there was a change of 300 or fewer students, and 10 percent of the transfers resulted in a gain of 1,000 or more students.

Data on gains in student population suggest that the moves were patternless, or random. So does the geographical character of the moves.³ Neither counties or regions within the state had excess emigrations or immigrations.

Further details of transitions within the bounded set of positions show that some individuals leave the network for a relatively brief time, for whatever reason, and then return. Between 1966-67 and 1974-75 holders of the positions of superintendent or assistant superintendent moved 106 times among those positions. Twenty of the moves involved leaving the network temporarily. The time in limbo, with few exceptions, was one or two years.⁴ Those individuals whose moves were delayed by a period of time in limbo assumed a position much like the one they had left in terms of the size of the student population. Those superintendents who made delayed moves gained a mean of 161 students; those who made immediate moves had a mean gain of 351 students.

Transitions Out of the Network

Before calling attention to the features of movement of administrators out of the Oregon network, it is necessary to indicate the extent to which the line administrative posts in Oregon have been bounded artificially. To the extent that the principals and superintendents can and do pursue an orderly career outside of Oregon is the extent to

³ On the random nature of the careers of school superintendents see J. C. March and J. G. March, "Almost Random Careers: The Wisconsin School Superintendency," *Administrative Science Quarterly*, Vol. 22 September 1977.

⁴ What those who leave the network and later return to it do while outside the network is largely unknown. Speculation runs through unemployment, business ventures, trials at other employment, and employment in other education related activities. What is clear, however, is that these superintendents and assistant superintendents did not interrupt their employment in the network to secure a required certificate for employment in the network. Holding the positions they left is evidence that they already had earned the certificates necessary for employment in the network.

which the boundary is artificial. If the boundary is artificial, transitions in and out of the network lose all but provincial meaning.

It is obvious that line administrative posts exist in all states in the U.S. and that some individuals in the Oregon network could take such posts. Three factors, however, hinder interstate movement of administrators: no reciprocity among the states regarding the certification of administrators; retirement benefits are tied to a specific state and are not transferable; no central compilation of vacancy notices. Nevertheless, administrators do make interstate moves. Knowledge of the extent to which they make such moves is rather incomplete owing to the limited inquiry that has been made. Among 51 former Arkansas school superintendents who left their positions, Shipman found that three became superintendents outside of Arkansas, 22 took education-related jobs (but not line administrative jobs), 13 were retired or unemployed, and 13 took jobs unrelated to education.⁵ Similarly, Rappolee traced 310 former Oklahoma elementary school principals and found that one took a line administrative post, 122 took education-related jobs (primarily as classroom teachers), 83 took noneducation jobs, 56 had retired, 27 had died, and 21 had entered military service.⁶

The evidence that does exist, then, shows that the vast majority of line administrators who leave their posts do not take line administrative posts in another state. Of the 361 administrators noted above, only four or about one percent, took line administrative posts in another state. From the existing evidence on the extent of interstate moves, it seems fair to conclude that the boundary drawn around the Oregon network is far more real than it is artificial.

Notable about the Oregon transition matrix is the high probability of leaving the network from one year to the next. The probabilities of leaving range from a low of 87 chances out of 1,000 for assistant superintendents to a high of 149 chances out of 1,000 for junior high school principals.

The most striking feature of the transition matrix is in the sums of

⁵ Shipman, Paul R., "Selected Factors Related to the Turnover of Public School Superintendents in Arkansas." Unpublished doctoral dissertation, University of Arkansas, 1965.

⁶ Rappolee, Walter E., "The Status of the Elementary School Principalship in Oklahoma in 1953-54." Unpublished doctoral dissertation, University of Oklahoma, 1955.

probabilities of leaving and staying. Such sums are rather uniform, with a range from a low of .949 for superintendents to a high of .982 for junior high school principals. On the one hand this means that superintendents, from one year to the next, have only 51 chances, and junior high school principals have only 18 chances out of 1,000 of moving from one position to another within the network. On the other hand, it means the combined chances of staying in position and leaving the network are exceedingly high, being 949 chances out of 1,000 for superintendents and 982 chances out of 1,000 for junior high school principals.

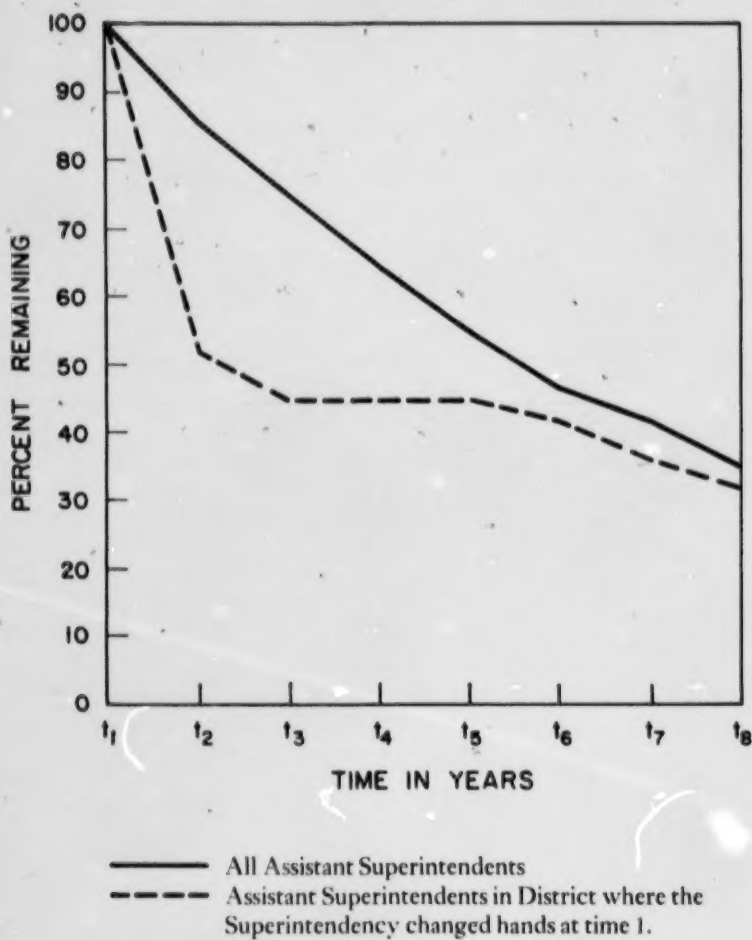
In essence, these sums of probabilities of staying in position and leaving the network strongly suggest that each and every position in the network is a dead end. The probabilities of either staying in position or leaving consume virtually all of the probabilities. The sums suggest that the All American Dream of starting at the bottom and working to the top, is just a dream. It is the exception, not the rule, given these summed probabilities.

While the propensity to leave the network is rather high, it varies with individual circumstances. This variation in the propensity to leave can be seen in the case of assistant superintendents. The variation in individual circumstances is whether an assistant superintendent holds the position at the time a new superintendent is hired. As shown in Figure 1, the mean life of all assistant superintendents is longer in position than is the life of those who acquire a new boss. The broken line is the retention rate for assistant superintendents who worked in school systems in which the superintendent changed from time 0 to time 1. The impact of the varying individual circumstances is particularly noticeable in the first two years after the succession. Only 52 percent of the assistant superintendents remained in position two years after the succession, but 86 percent of all assistant superintendents were in position at the end of time 2. Those who acquire a new superintendent and survive in position after time 3 have almost the same chance of staying in position thereafter as all assistant superintendents.

Entry Into the Network

Row 6 of the transition matrix shows by position the number of

FIGURE 1
Differential Survival Rates of
Assistant Superintendents



people who obtained a job in the network for the first time. The fact is notable that every position is penetrable from outside the network. While the largest number enter the lowest position in the hierarchy, entry in each position is made by a sizable number of people every year. The superintendency is the least entered position. The percentage stands at 7.9. The high school principal position is the most entered, with the percentage standing at 12.6.

TRANSITION PROBABILITIES IN NEW SOUTH WALES

The transition matrix for N.S.W., shown in Table II, was constructed with the aid of an annual *Directory of Regional Directors and Inspectors*, published by the N.S.W. Department of Education. That directory contained the names of all regional directors of education, assistant regional directors of education, staff inspectors, and the other four types of inspectors. No directory of principals existed and there was not a directory of assistant directors, directors, assistant general directors, deputy general directors or directors general. Occupants of the latter five positions, over time, were gleaned from various tables of organization, department telephone directories, and informants.

In order to determine who were the principals and when, a directory of principals was constructed from two sources: a listing of the schools currently in operation in the state, and a card file called the "schools" file. The file contained 5 x 8 inch cards, one or more cards for each school, showing the school name and the names and dates of appointments of all principals who had served in the school. The file is reported to contain more than 9,000 cards because records are maintained for the more than 1,600 operating schools as well as schools which existed at some time during the 97-year history of the department. All entries had been made by hand and it was interesting, for a minute or two, to observe how handwriting styles have changed over the last 97 years.

The directory was constructed to show occupants of relevant positions for 1974, 1975, 1976, and 1977. The probabilities shown in the matrix are mean probabilities for each position for three transition periods: 1974 to 1975, 1975 to 1976, and 1976 to 1977. The entire population was examined in each of these transition periods.

TABLE II
N.S.W. Transition Matrix
Position of Destination at Time 2

	1	2	3	4	5	6	7	8	9	10
1	.67									
2		.50								
3	.50	.50								
4			.169	.698						
5				.03	.849					
6						1.0				
7					.060		.873			
8					.028		.028	.812		
9							.008	.011	.732	
10							.005	.006		.892
11										.037
12										.030
13									.001	.004
14									.008	
15									.026	
16									.003	
17										
18										
19										
20	0	0	0	.33	0	0	0	0	4	3.3

CODE:

Rows & columns 1-19

1. Director general
2. Deputy director general
3. Asst. director general
4. Director
5. Regional director of education
6. Asst. director
7. Asst. regional director of education
8. Staff inspector
9. Inspector of schools
10. Secondary inspector, central panel
11. Inspector resident in region
12. Regional secondary inspector
13. Secondary principal
14. Class I primary principal

11	12	13	14	15	16	17	18	19	20	21
										.33
										.50
										0
										.085
										.091
										0
										.067
										.132
										.064
										.087
.963										0
	.94									.03
		.812							.057	.126
			.785		.034				.053	.12
			.026	.691	.051				.026	.18
			.059	.002	.786		.005		.064	.081
			.042	.018	.066	.784			.006	.066
			.001	.001	.017	.005	.795	.001	.04	.14
					.03	.091		.727		.152
0	0	47.3	22.3	1.33	51	8.3	68.7	2.3		

15. Class I central school principal
 16. Class II primary school principal
 17. Class II central school principal
 18. Class III primary school principal
 19. Class III central school principal
 Row 20: number who enter/year
 Column 20: lateral transfers
 Column 21: out of network

The transition matrix is laid out in the same way as is the Oregon matrix and it is read in the same way.

Within Transitions

One notable feature of the matrix is the relative absence of moves which are retreats down the hierarchy, represented by those probabilities above and to the right of the diagonal. The sum of such probabilities is very small standing at .102 and most of the probability is attributed to Class I primary school principals moving to Class II schools and Class I central school principals moving to Class II primary schools.

Striking about the transition probabilities is the stone wall, so to speak, encountered by primary and central school principals as they reach the level of Class I primary school principal. The position above that to which they do move is inspector of schools. That transition probability is almost nonexistent for Class I and II primary school principals and low, at best, for Class I central school principals.

The demarcation between secondary schools, on the one hand, and primary and central schools, on the other, created by the separation of the promotion lists and their experience barriers, is absolutely clean cut, as shown in the matrix. No one crossed the line. No secondary school principal became principal of a primary or central school and no principal of the latter schools moved the other way.

The probability of principals staying in position in N.S.W. is somewhat lower than it is for Oregon principals. The range of probabilities in N.S.W. is from .691 to .812, while the range for Oregon principals is from .828 to .861. Also, both the probabilities of moving to a higher status principalship and making a lateral transfer are higher for N.S.W. principals than they are for Oregon principals. The highest probability of a principal in N.S.W. becoming a higher status principal is .066, from Class III central to Class II primary, and the highest probability for such a move in Oregon is .0108, from elementary to junior high school principal. The highest probability of a principal making a lateral transfer in N.S.W. is .064, among Class II primary school principals, and the highest probability for Oregon principals is .0168, among high school principals.

The relatively sizable probability of lateral transfers among N.S.W.

principals prompted an examination of the geographical nature of the moves of principals. In a sample of 189 transitions of principals, 85 were promotions, 100 were lateral transfers, and four were descents in status. Seventy-two of the lateral transfers and descents in the hierarchy were moves from one administrative region to another. Assuming that lateral transfers and descents are motivated more by geographical considerations than are promotions, ratios were made for each region by summing the numbers of gains to the region via lateral transfers and descents and dividing that sum by the sum of the number of losses from the region via lateral transfers and descents. Such ratios can be seen as indicators of the attractiveness of the eleven different regions into which the N.S.W. Department of Education is divided. The three regions with the highest ratios, most gains and fewest losses, were St. George, a suburban region of Sydney; North Coast, a region of coastal towns north of Newcastle; and North Shore, a suburban coastal region of Sydney. The three regions with the lowest ratios were Liverpool, an industrial city up river from Botany Bay; South Coast, a region of industrial coastal towns south of Sydney; and North West, a region of outback country towns in the northwest quarter of N.S.W.

Although the probabilities for lateral transfers among principals are high, the probability is even higher for inspectors of schools, .185. Lateral transfers among primary district inspectors of schools is involuntary. They are subject to transfer every five years. The rather high probability of lateral transfers among directors can be attributed to the ever-present preoccupation of regrouping administrative tasks among administrators. The impact of this activity on careers can be seen in the fact that in 1974 and 1975 there were no assistant directors general but in 1977 there were three. In 1974 there were nine directors and only five in 1977.

Such regrouping of tasks sometimes attracts the attention of the press. As a result of the shifts in the two positions mentioned above, and the normal change in the director generalship, *The Sydney Morning Herald*, on October 27, 1977 devoted one-fourth of a page to a story, "They're Changing the Guard at Education." The journalist, describing the action as "Upwards, sideways, in—and in some cases—out . . .," said of the commonplace regrouping and reassignments:

"... they've been shifting in what is considered the biggest upheaval in the department's 97-year history."

The transition probabilities relating to higher officers are marked by high probabilities of staying in position from one year to the next, and correspondingly, by low promotion probabilities, except in positions having only two or three occupants in which transition probabilities are easily distorted by taking few time samples. While the promotion probabilities are relatively low, the magnitude of the moves is also modest. Only a few positions can be leaped over, positions 6, 7, 8, and 9, but positions 7 and 8 are of equal status, leaving only inspector of schools and assistant director.

Transitions Out of the Network

The probabilities of principals leaving the network,⁷ for whatever reason, are mixed, ranging from a low of .066 for Class II central school principals to a high of .18 for Class I central school principals. Too much weight should not be attached to the last probability because of the small number of principals involved. Nevertheless, the probability of the some 430 Class III primary principals leaving the network is high, 14 chances in 100. The range of such probabilities is larger than the range among Oregon principals which is from .098 for elementary school principals to .149 for junior high school principals. In Oregon the sum of the probabilities of principals staying in position and leaving the network was for each type more than .95, but such sums are not nearly so high in N.S.W., ranging from a low of .85 for Class II central school principals to a high of .94 for secondary school

⁷ With all bounded sets of positions there is the issue of artificiality of the boundary, an issue which has been discussed above in regard to the Oregon network. In N.S.W. and W.A. the seniority and experience rules which find expression in the various promotion lists make the boundaries very real. Interstate mobility among principals is prohibited by the seniority and experience rules. If a principal were to transfer interstate, he or she would need to enter the new state department as a beginning teacher and, in effect, start tracing out an orderly career all over again. The boundary regarding the higher officer positions is equally real but it is enforced by the press of tradition rather than by rules. In N.S.W., the 218 administrators who left the network at the end of 1974 were traced in order to determine their destination. Of that number, 83 percent retired and 17 percent maintained employment with the N.S.W. Department of Education, but acted in capacities other than line administrators, serving mostly as classroom teachers.

principals. These lower sums in N.S.W. mean more within network movement among principals in N.S.W. than in Oregon.

Entry Into the Network

The pattern of entry into the network is remarkably different in the two school systems examined so far. All of the positions in the hierarchy in Oregon were penetrable from outside the network. The same is not true of N.S.W. where higher officer positions are virtually impenetrable, even though such positions are not regulated by any formal career barrier. In fact, what informants say is a "famous first" is represented by the .33 figure at the intersection of row 20 and column 4 in the matrix. (If it seems odd for one-third of a person to enter the network, remember that figures in row 20 are the mean of three years.) The one person, in three years, who entered the network at the director level in the hierarchy left a similar post in the neighboring state of Queensland. The fact a nonemployee of the department was awarded the post constituted the "famous first." All informants believed he was the sole nonemployee in the 97-year history of the department to receive an administrative post. It is not the absence of public notices of vacancies and public advertising for applicants that keeps nonemployees of the department from obtaining administrative posts. Vacancies are duly made public and advertisements are frequently placed in the newspapers. On September 14, 1977, for example, *The Sydney Morning Herald* carried an advertisement of the department calling for applications for four positions of regional director of education. The advertisement indicated that the department would consider paying removal costs for persons appointed from interstate. What does appear to be keeping nonemployees of the department from being appointed to management posts is either the lack of such qualified applicants or informal career barriers.

Further along on row 20 where it intersects with columns 9 and 10 are other seemingly irregular entries to the administrative hierarchy. They seem irregular because of the relatively high status of the positions entered, but the positions are filled by invitation. The seven people, on average, who entered there each year were employees of the department. Prior to assuming the new posts, almost half of them were deputy principals, a third were subject masters or mistresses,

and the remainder were demonstration school principals.

The main points of entry to the network are the positions of secondary school principal and Class III primary and central school principals. Those who enter the network as secondary school principals have been secondary school deputy principals and those who enter in the Class III schools have most immediately been teachers.

TRANSITION PROBABILITIES IN WESTERN AUSTRALIA

The W.A. transition matrix, shown in Table III, was constructed with the aid of a computer printed directory of department personnel showing, in each annual publication, positions and occupants. As in N.S.W., the years used were 1974, 1975, 1976, and 1977. The probabilities shown in the matrix are mean probabilities of the transition probabilities for the three transition times 1974 to 1975, 1975 to 1976, and 1976 to 1977. The entire population of the occupants of the network was examined in each of the transition periods.

The transition matrix is laid out in the same manner as are the other two and it is read in the same way.

Within Transitions

As shown in the W.A. transition matrix, principals are less likely to stay in position from one year to the next than are principals in either Oregon or N.S.W. The range of such probabilities is from a low of .594 to a high of .793.

Also, among principals the probabilities of moving to the next higher class school are high. For example, high school principals have 186 chances out of 1,000 of moving to a senior high school, from one year to the next, and Class II primary school principals have 141 chances in 1,000 of moving up one class. Likewise, probabilities of lateral transfer are high. Among senior high school principals the lateral move probability is .199, slightly higher than it is for principals of Class IA primary schools.

Most notable about the transition matrix is that, from the positions of district high school principal and Class II primary school principal, occupants move to a wide range of positions. From the position of principal of a Class I district high school, the occupants move to all other principalships except the Class III primary school. The range of

TABLE III
W. A. Transition Matrix
Position of Destination at Time 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	.667															
2		1.0														.333
3	.167	.167	.667													
4			.167	.416												
5				.167	.583											.416
6					.048	.587										.25
7							.719	.03							.303	.0635
8							.186	.755							.199	.119
9															.02	.039
10					.014	.056	.042	.594	.042	.014	.056	.014			.084	.084
11								.123	.636			.099	.072	.023	.023	.024
12										.647	.024				.181	.147
13											.793			.002	.094	.081
14												.141	.661	.004	.144	.04
15	0	0	0	0	0	0	4.67	0	3.67	5.3	2.3	7.3	4.3	25.7		

CODE:

Rows & Columns 1-14

1. Director General
2. Deputy Director General
3. Assistant Director General
4. Director
5. Assistant Director

6. Superintendent
7. Senior High School Principal
8. High School Principal
9. Class I District High School Principal
10. Class II District High School Principal
11. Class IA Primary School Principal

12. Class I Primary School Principal
13. Class II Primary School Principal
14. Class III Primary School Principal
- Column 15: Lateral Transfer
- Column 16: Out of Network
- Row 15: Number who enter / year

positions to which the principals of the other two types mentioned is not as wide, but it is remarkable.

The magnitude of the moves is great, nevertheless, transition from principal to higher officer (positions 1-6) is exceedingly rare. During the three transition periods, only one person made such a transition and he was a Class I district high school principal.

Among higher officers transition probabilities are high during the time period because a succession in the director generalship occurred, which permitted many higher officers to slide up a rung or two.

Transitions Out of the Network

The probabilities of leaving the bounded set of positions are mixed for principals in W.A. as they were in N.S.W. This is quite unlike the uniform probabilities in Oregon. Overall, the chance of principals leaving the network is lower in W.A. than it is in either Oregon or N.S.W.

In W.A., the realignment of administrative tasks and the reassignment of higher officers can be seen clearly as in N.S.W. A superintendent has equal chances of staying in position or making a lateral transfer. During each of the years of observation some posts were created and others abolished, and individuals moved from abolished posts to newly created posts, while others made lateral transfers.

Entry Into the Network

Row 15 of the matrix shows the average number of people who entered the bounded set of positions per year. The display of figures is much like that in the matrix for N.S.W. In each state, the prime entry point is the lowest position in the hierarchy. But unlike N.S.W., no one leaped over the position of principal in advancing to a higher officer post, and no nonemployee of the department entered the network. Again, N.S.W. and W.A. differ from Oregon. In the former two only the lower-classed positions are entered from outside the network but in Oregon all posts can be and are entered from outside.

*Orderly Career Opportunities
and Career Barriers*

Having plodded through the maze of career barriers and the complexities of orderly career opportunities in the three school systems, attention can now be turned to the interaction between barriers and opportunities. This analysis will be aimed at unraveling the various combinations of career barriers and isolating various orderly career opportunities in an effort to see how the barriers affect orderly career opportunities.

The position of school principal will get most of the attention because it has the richest array of formal career barriers. Moreover, the duties assigned to school principals in the three school systems are virtually identical, thereby permitting a rather straightforward comparison, even though there is slight variation in the nomenclature for schools and slight variation in the age of students in the various primary and secondary schools. Further, the orderly career opportunities of principals, as shown in the transition matrices, are the most reliable of all positions in the networks because of the greater number of principals.

Because they can be expressed by numbers, the orderly career opportunities of the principals, and the differences in the opportuni-

TABLE IV
Career Opportunities of Principals

School System	Percent of Principals who, from one year to the next					
	Stay in position	Receive Regular Promotion	Receive other Promotion	Make Lateral Transfer	Receive Demotion	Leave Network
Oregon	85	.93	1.4	1.4	.47	10.8
N.S.W.	79.2	2.7	.41	5.5	.79	11.4
W.A.	70.1	4.4	.96	11.5	3.6	9.2

ties in the three school systems, can be seen easily, as shown in Table IV. In this, the first of five comparisons, the table shows the unequivocal superiority of opportunities for principals in W.A. to receive regular promotions from one position to the next higher, compared with the opportunities in the other two school systems. When the percentage receiving a regular promotion is added to the percentage receiving a promotion in which they leap over one or more positions, W. A. still has the greatest promotional opportunities.

It is clear that the greatest orderly career opportunities for principals are found in W.A. What accounts for these greater opportunities, and which career barriers contribute to the opportunities, can only be seen in further, more tightly-controlled comparisons.

A second comparison involves movement among primary schools by primary school principals. In Oregon, such movement is subject to no career barrier. Oregon primary school principals can move laterally, and, if the new school has more students, the salary will be higher. A lateral transfer for Oregon primary principals is like moving from one class primary school to the next higher class primary school in N.S.W. and W.A. Also, Oregon elementary school principals can become junior high school principals without surmounting a barrier. Such a move constitutes a promotion, like moving from one class to another class primary school in W.A. and N.S.W. Therefore, the chances of making promotion moves in Oregon without barriers can be compared with the chances of promotional moves by primary principals in N.S.W. and W.A. with barriers.

Career barriers for promotion of primary principals in N.S.W. and W.A. are quite similar. For primary principals in W.A. to move to the next higher class, they must serve two years at least in a lower classed school, request placement on the next higher promotion list, and then wait until their seniority is sufficient. In N.S.W. the process is the same, except instead of requesting placement of the next higher promotion list the principal must be judged by inspection to satisfy the requirements necessary for the next higher promotion list. In W.A. placement on the next higher list is achieved by request. In N.S.W. it is not automatic but depends on inspection.

By analyzing the orderly career moves of the three groups of primary principals it is possible to make two comparisons that depict the impact of various barriers on orderly career opportunities. Comparing the transition probabilities in Oregon with those in both N.S.W. and W.A. will show the impact of lock-step experience, seniority, and performance measure barriers in contrast to the impact of no barriers. And comparing the transition probabilities in W.A. with those in N.S.W. will show the impact of the performance measurement barrier.

Transition probabilities taken from the three matrices, converted into percentages by calculations using the relevant number of principal positions in each state, show the percent of primary principals making regular promotion moves from one year to the next to be 2.6 in Oregon, 4.42 in N.S.W. and 4.7 in W.A.

Comparing the percentage in Oregon, where no career barriers apply, with the percentages in W.A. and N.S.W., where lock-step experience, seniority and performance measures apply, the superiority of the orderly career opportunities in the latter two states is clear. The presence of the seniority and lock-step experience barriers enhance orderly career opportunities.

But the seniority and lock-step experience career barriers are like a double edge sword. On the one side they necessitate people moving through prescribed positions and they require waiting one's turn. On the other side, however, they do guarantee that one's turn will come. With the absence of career barriers, there is no guarantee of promotion, and one must gain the promotion by surmounting the ill-defined informal career barriers.

Comparing the movement of principals from one class of primary school to another in W.A. and N.S.W. draws attention to the role of performance measurement barriers in orderly career opportunities. The percentages above show that the orderly career opportunities in W.A. are slightly higher than in N.S.W. The difference is because not all who request inspection for promotion to the next higher promotion list in N.S.W. are judged to satisfy the requirements. The few who are held in grade, or delayed there awaiting a second inspection in two years, cause a lowering of the orderly career opportunities.

The third comparison can be made between moves of Oregon and W.A. secondary principals. A regular promotion move in Oregon would be from junior high school to high school principal. In W.A. it would be from Class II district high to Class I district high, to high, to senior high school principal. The regular promotion move in Oregon is regulated, in part, by an education barrier. That is, junior high school principals holding an elementary school principal's certificate, but no junior high school principals holding a high school principal's certificate, are subject to an education barrier. In W.A. regular promotion is regulated first by seniority, then by experience, which can be obtained in more than one position, then by various readings of seniority. Thus, the impact of an education barrier is compared with the impact of the combination of seniority, experience (of the non-lock-step type), and more seniority barriers.

The Oregon transition table shows that from one year to the next .91 percent of the junior high school principals become high school principals. Transition probabilities from the W.A. transition matrix, when entered into calculations taking into account the numbers of relevant secondary principals, show that 12.6 percent of the W.A. secondary principals, from one year to the next, receive regular promotion. The difference is striking, with the seniority, experience, seniority barriers in combination providing far superior chances of regular promotion.

Again, the barriers of seniority, experience, and more seniority combine to produce the greater promotion opportunities. Even though they do require turn taking and therefore a waiting period, they do guarantee that one's turn will come. Education barriers do not provide that guarantee. By surmounting an education barrier one

simply becomes a member of a pool of eligible persons, and thereafter must contend with other members of the eligibility pool and surmount the unknowable informal barriers.

The fourth comparison can be made among senior high school principals in W.A., secondary principals in N.S.W. and high school principals in Oregon, all at the top of the hierarchy among secondary principals in their respective states of the probability of making, not promotional moves, but lateral moves. A promotion is sometimes valued for the added status and increased salary. A lateral move is also valued, but for somewhat different reasons. A lateral move of a high school principal in Oregon often takes him or her to a school with a larger enrollment, and so the salary is larger. A lateral move is valued in all three states because it often permits leaving an undesirable location. Further, because all senior secondary schools seemingly everywhere are loosely ranked by prestige, a lateral move is valued because it often takes one to a school of higher prestige and thereby enhances the prestige of the principal who makes the lateral move.

The comparisons of the probabilities of making a lateral move among the senior secondary principals in the three states pit two different combinations of barriers against each other. In Oregon, the lateral transfer of a high school principal is not regulated by a career barrier, but transfer of secondary school principals in N.S.W. and W.A. is regulated by seniority barriers.

The transition matrices give the probabilities. From one year to the next, 1.68 percent of the high school principals in Oregon, 5.7 percent of the secondary principals in N.S.W., and 19.9 percent of the senior high school principals in W.A. make lateral transfers.

The differences are again striking. The greatest probability of a lateral transfer is in the W.A. and N.S.W. school systems where the seniority barriers provide a guarantee that, at least in time, one will stand high on the transfer list. That guarantee is not present in Oregon. Without career barriers, the Oregon high school principals compete, one with another, in the face of unknowable informal barriers. They also compete with others outside of the Oregon network.

The very high probability of lateral transfers of W.A. senior high school principals—19.9—defies ready explanation. One assumption per-

tains to the geography of the state, with its many undesirable and few desirable areas. Lateral transfer rules which reflect the nature of living conditions have been worked out for three types of schools.

A fifth and final comparison can be made of the probabilities of moving from any position of principal to a high officer position in the three school systems. In N.S.W. and W.A. such a move is "by invitation." No formal career barriers pertain. In Oregon, an educational barrier exists between the position of principal and the positions of assistant superintendent or superintendent. The percentage of principals who, from one year to the next, make such moves is 1.3 in Oregon, .36 in N.S.W., and .063 in W.A.

The superior chances of such moves are in Oregon where there is an education barrier. The education barrier provides no guarantee, but it does provide a limited eligibility pool. Appointment by invitation means an unlimited eligibility pool.

A limited and necessarily tentative assessment of the impact of the various formal career barriers on orderly career opportunities can now, as a result of the above comparisons, be made. Standing out above all else, the various comparisons show that transitions are most robust where career barriers provide a guarantee sometime of promotion or lateral transfer.

A seniority barrier provides such a guarantee. So do all experience barriers, when combined with seniority barriers. But neither education nor subjective measures of performance barriers provide the guarantee. Education barriers simply reduce the size of the eligibility pools. But being in an eligibility pool does not constitute a guarantee of promotion. The subjective measure of performance barrier does not provide a guarantee. It offers an opportunity to fail to meet the standard and thus undermines any guarantee provided by seniority barriers.

The comparisons have shown over and over that when barriers are used which provide a guarantee that one's turn will someday come, promotion and lateral transfer are comparatively the highest. In Table IV, which compares the general promotion and lateral transfer probabilities of all principals in the three school systems, W.A. shows the highest probabilities with its seniority barriers. N.S.W. ranks next

with its seniority barriers adulterated by subjective measures of performance barriers, and Oregon ranks last with its education barrier. Similarly, when the comparison shifted to regular promotions among primary principals in the three systems, W.A. and N.S.W. had higher probabilities with their use of the first two weighted barriers of seniority and seniority in position, while Oregon probabilities lagged behind because no formal career barrier applies to the regular promotion of elementary school principals. N.S.W. lagged somewhat behind W.A. because of performance barriers.

The third, fourth, and fifth comparisons yielded the same result. In the third comparison the W.A. secondary principals showed much higher probabilities of regular promotions with the seniority and non-lock-step experience barriers, than Oregon secondary principals with the education barrier. The fourth comparison contrasted the barrier of seniority and the absence of formal career barriers in the probabilities of lateral transfers of senior secondary principals. The probabilities were greatest when seniority was the barrier, smallest when there was no barrier. The fifth comparison dealt with probabilities of principals moving to higher officer positions. The probabilities were higher in Oregon, with its educational barrier, than they were in W.A. or N.S.W. where no career barriers exist and appointment is made by invitation.

As can be seen, the orderly career opportunities are differentially affected by the various career barriers. Barriers which provide the most finite differentiation among individuals on an objective base produce the most orderly career opportunities.

The various career barriers can be ranked by their effect on orderly career opportunities. Orderly career opportunities are greatest when careers are regulated by seniority barriers, which guarantee promotion eventually. They eliminate competition and rule out subjectivity. Orderly career opportunities are next highest when careers are regulated by subjective measure of performance barriers. Such barriers provide less of a guarantee of promotion, in time, than seniority barriers. Third-ranked are education barriers, which result in a limited eligibility pool and provide only the greater chance afforded by a limited pool. Last is total absence of formal career barriers. In this

case orderly career opportunities are least available. In the absence of career barriers, individuals are hardly distinguishable one from another, and it often seems that strangers are then most often preferred to veterans because the faults of veterans are known while strangers have yet to reveal their faults. As a consequence, veterans often seem to spend their careers in one position or in a very restricted range of positions.

The impact of various career barriers on orderly career opportunities has now been shown. It is clear, at least in the three school systems, that some barriers are related to high orderly career opportunities and other barriers dictate few orderly career opportunities.

Orderly Career Opportunities and Vacancy Chains

Orderly career opportunities are affected by career barriers. They are also profoundly affected by vacancies. Orderly careers are, in fact, dependent upon vacancies.

Regardless of talent, skill, or creativity; regardless of seniority, experience, proficiency marks, or education; regardless of standing on a promotion or transfer list, a person does not move up to another position unless there is a vacancy. Vacancies alone permit transitions.

An old saw has it that behind every successful man stands a woman. While being a sexist remark, it is also less than accurate. It should read, "in front of every successful person stands a vacancy."

Vacancies, all important for movement from one job to another, have variable histories once they enter a bounded set of positions. These variable histories, or more accurately, variable life spans, are attributable to the property of movement of vacancies. Just as people move from one position to another, so vacancies move from one position to another.

The mobility properties of vacancies can be seen in the following illustrations. Consider a network of three positions, A, B, and C, oc-

cupied respectively by persons 1, 2, and 3—three positions and three people. All other positions (e.g., D, E, F) and all other people (e.g., 4, 5, 6) are outside the network. If person 1 retires, it can then be said that a vacancy occupies position A. If person 2 moves from position B to position A, then the vacancy simply moves from position A to position B and can then be said to occupy position B. The vacancy moves in the opposite direction to that of the person; it moves down the hierarchy as the person moves up. If person 3 moves from position C to position B, the vacancy moves from position B to position C. If person 4, from outside the network, is appointed to position C, then the vacancy moves outside the bounded set of positions; it exits from the network. In this illustration it can be seen that the vacancy entered the network at position A, moved to position B as person 2 moved to position A, moved to position C as person 3 moved to position B, and then moved out of the network as person 4 was appointed to position C. The vacancy occupied three positions, A, B, and C. It has a chain length of three positions.

With the same positions, A, B, and C, and the same occupants, 1, 2, and 3, consider another illustration. If person 1 retires, then a vacancy occupies position A. If person 4, from outside the network is appointed to position A, then the vacancy leaves the network, having occupied only one position and having had a chain length of one.

A vacancy can occupy one or more positions during its life span in a bounded set of positions. In the first illustration, the vacancy moved so it permitted the movement, from one position to another, of two people. In the second illustration, the vacancy moved in such a manner as to permit no one in the network to move from one position to another.

Vacancies have variable life spans and permit much or little movement of people from position to position, depending on the length of their chains. Orderly career opportunities are enhanced when vacancies occupy a large number of positions, or have long chains, because, as vacancies move from position to position, so do people move from position to position. Vacancies with short chain lengths depress orderly career opportunities because they exit from the network before more than a few people have had an opportunity to move from one position to another.

As vacancies move into and out of a bounded set of positions they exhibit classic symmetry. They enter in only two ways and they exit in only two ways. Whenever and wherever a new position is created it is first occupied by a vacancy. The creation of new positions is one way vacancies enter a bounded set of positions. A vacancy also enters a network when a person holding a position leaves the network.

A vacancy exits from a network whenever the position a vacancy is occupying is filled by a person from outside the bounded set of positions. A vacancy also is removed from the network when the position it is occupying is abolished.

Vacancies enter and exit as people move in and out of the network, and vacancies enter and exit as new positions are established and existing positions abolished.

A vacancy is a distinct entity. It enters a network through an identifiable position, occupies one and only one position at a time, and exits from an identifiable position. This means that vacancies can be distinguished one from another and the history of each vacancy can be traced in a network.

As a general rule, once a vacancy enters a network, regardless of the position entered, the vacancy will move downward, position by position, in the hierarchy and then exit from the bottom position in the hierarchy. Consequently, the higher the entry position of a vacancy, the longer will be its chain length. A vacancy entering at the position of director general, for example, should have a longer chain length than a vacancy entering at the position of Class III primary school principal.

Certain events and manpower flow policies, however, can and do cause vacancies to move in ways contrary to the basic rule. They may cause a vacancy to exit prematurely from the network, or to leap over positions in its otherwise orderly descent of a hierarchy.

Certain career barriers, or their lack, cause vacancies to leap over positions in their descent. Education barriers and the practice of filling positions by invitation can cause this. With education barriers a person of low standing in the hierarchy, but who has necessary education requirements, could fill a high-ranked position. In such a case the vacancy would leap over the positions between the high-ranked position and the low-ranked position from which the person

moved. Similarly, appointment by invitation could result in a person leaping over positions in assuming a new post which in turn would cause a vacancy to leap over those very same positions. The same is potentially true of performance rating barriers.

Seniority and lock-step experience barriers do not place the basic rule in abeyance. Under seniority and lock-step experience career barriers, vacancies move according to the general rule; they descend from the point of entry in the hierarchy, position by position, to the bottom.

Appointment by invitation, and education and performance rating career barriers can cause vacancies to leap over positions in their descent. Further, certain career barriers and manpower decisions can cause vacancies to exit prematurely from a bounded set of positions. When a vacated position is abolished, which happens often with high-ranked positions, the vacancy leaves the network along with the abolished position. The vacancy exits prematurely by not descending all the way to the bottom of the hierarchy. Experience barriers, such as alternative, non-lock-step experience barriers which allow qualifying experience to be gained outside the network, can cause a vacancy to exit prematurely when a person who has gained the qualifying experience outside the network takes a position in the network. More generally, manpower flow policies which do not assure that only the bottom position in the hierarchy will be filled by someone not already holding a position in the bounded set cause vacancies to exit prematurely from the network. For example, attention was drawn in the preceding chapter to the filling of a position of director in N.S.W. with a person from outside the network. The action caused the vacancy to leave the network from the position of director and prevented the vacancy from moving all the way down the hierarchy.

Above it was indicated that orderly careers are dependent upon vacancies and that vacancies with long chains enhance and vacancies with short chains depress orderly career opportunities. Now the interaction of orderly career opportunities, career barriers, and vacancy chains can be seen. Orderly career opportunities are highest when lock-step experience and seniority barriers are employed. The reason is that those career barriers do not place the general rule for the movement of vacancies in abeyance. Vacancies move in an orderly

descent from the position of entry down the hierarchy position by position to the bottom where lock-step experience and seniority barriers are used. Therefore, at least one person in each tier of the hierarchy below the point of entry moves up one notch with every vacancy. The same does not hold true for other types of career barriers. They can cause vacancies to exit prematurely from a network. Thus the chance of a promotion is lost by all persons below the position from which the vacancy made the premature exit. So, while career barriers govern movement from position to position, their varying effect on the movement of vacancies is what enhances or depresses orderly career opportunities.

Following this general discourse on vacancies and vacancy chains, the interrelatedness of orderly career opportunities and the length of vacancy chains, and the interrelatedness of the length of vacancy chains and career barriers, attention will now be turned to the life histories of vacancies in the three school systems.

Each school system was blessed or handicapped, depending on one's persuasion, by a relatively large number of vacancies. Each year approximately 15 percent of the positions in Oregon were vacated by people leaving the network. In N.S.W. and W.A. the percentage was between 12 and 13.

Not every vacancy that entered the school systems was traced. Sampling was done. Traced at the 50 percent sample rate were vacancies which entered the high school and junior high school principalships in Oregon, central school principalships in N.S.W., and senior high school, high school, district high school, and Class IA and II primary school principalships in W.A. All vacancies entering higher officer positions were traced in each of the school systems, and vacancies which entered the remaining positions were traced at the 25 percent sample rate.

The three school systems had a similar percentage of vacated positions each year, but the average length of the vacancy chains was different. In Oregon the mean number of positions occupied by vacancies was 1.56, in N.S.W. it was 1.83, and in W.A. it was 2.95.

The details of these means are shown in Table V. It shows, for each school system, each position by code number and the mean length of the vacancy chains that entered each position.

TABLE V
Length of Vacancy Chain By Position of Entry

Oregon		N. S. W.		W. A.	
Position entered	Mean Length of vacancy chain	Position entered	Mean Length of vacancy chain	Position entered	Mean Length of vacancy chain
1	1.58	1	3	1	6
2	1.59	2	4	2	4
3	1.66	3	3.25	3	-
4	1.0	4	4.5	4	2.5
5	1.51	5	4.33	5	2.5
		6	-	6	4.2
		7	3.33	7	2.2
		8	6.42	8	4.5
		9	3.9	9	1.81
		10	1.5	10	4
		11	2.0	11	4.51
		12	2.0	12	3.1
		13	1.3	13	3.27
		14	2.3	14	1.83
		15	2.0		
		16	2.0		
		17	1.6		
		18	1.25		
		19	1.2		

Overall it can be seen in the table that in none of the school systems do vacancies generally move in accord with the general rule of descending, position by position, from the position of entry to the bottom of the hierarchy. If vacancies did conform to the general rule of movement, the minimum number of positions occupied by a vacancy entering position 1 in Oregon would be 5, in N.S.W., 19, and W.A., 14. Moreover, this minimum would be exceeded almost invariably because a vacancy could occupy several posts at most position levels as lateral transfers took place. The general rule also indicates that the higher in the hierarchy a vacancy enters the longer will be its chain. Thus, if the vacancies followed the general rule, the mean lengths in the above table would be in nice, neat descending order, which they are not.

In general, also, the more robust orderly career opportunities,

shown in the preceding chapter in W.A., are reflected in Table V above by the generally longer vacancy chains and by the fact that the mean length of a vacancy chain in W.A. is almost twice as long as it is in the other two school systems. Oregon has the slimmest orderly career opportunities and the shortest vacancy chains, and N.S.W., with its middle ground orderly career opportunities, has the middle ground vacancy chain lengths.

Details presented in Chapter II on the formal career barriers used in the school systems permit analyses which go beyond these general comments. Oregon uses education barriers alone. Education barriers, as has been pointed out, often cause vacancies to leap over positions in their descent, because education barriers permit individuals to leap over positions. Also, in Oregon there are no rules or historical forces which assure that those holding posts in the network will be favored over those not in the network, in competition for a vacant post. Therefore, vacancies which enter the bounded set of positions in Oregon very often exit prematurely as persons not in the bounded set of positions are appointed to posts, as seen in row 6 of the Oregon transition matrix. Both education barriers and lack of assurance that vacated posts will be filled by individuals in the network disrupt the orderly flow of vacancies. And, as can be seen, for no position are vacancy chains anything but short.

Positions 1 through 12 in N.S.W. and positions 1 through 6 in W.A. are filled by invitation. This practice causes vacancies to leap over positions in their descent, thus shortening the length of the chain. Further, "invitations," when extended to employees of the systems who are not holding a position in the network, cause vacancies to exit prematurely from the network long before reaching the lowest position. Additionally, the management practice of regrouping tasks and reassigning administrators often results in the abolition of posts, which causes the vacancy to exit from the network with the post. These three factors cause the relatively short vacancy chains that enter the higher officer positions. The chains are as long as they are simply because of the historical force which strongly favors, in all appointments, employees over nonemployees.

In positions 11 through 14 in W.A., the primary principals' advancement is regulated by seniority and lock-step experience barriers. These

barriers do not disrupt the orderly flow of vacancies: they do not cause vacancies to exit prematurely, nor to leap over position in their descent. The length of the vacancy chains in these positions reflect this lack of disruption. The mean length of the vacancies which enter position 11 indicates that the vacancies occupy, in turn, positions 11, 12, 13, 14, with a lateral transfer also taking place with every other vacancy before the exit. The orderly descent is also apparent for vacancies entering positions 12, 13, and 14, with lateral transfers more common in the latter two positions, as shown by the length of the vacancy chains as well as by the W.A. transition matrix.

In positions 7 through 10 in W.A., secondary school principalships, by contrast, promotion is regulated by seniority and experience barriers. However, the experience barriers are not of the lock-step type, and more than one position is designated as one in which qualifying experience can be gained. As a result of the non-lock-step, alternate route experience barrier, vacancies are caused both to exit prematurely and leap over positions. Therefore, even though the secondary school principal posts stand relatively high in the hierarchy, the vacancy chains are not commensurably long.

The impact on vacancies of the complete demarcation between positions of primary school and secondary school principals in N.S.W., which does not permit personnel to move from either side to the other, is clearly seen in the chain length of the vacancies which enter position 13. The chain length is short, because a vacancy entering that position can occupy only that position and then exit prematurely. The vacancy does, however, permit lateral transfers, thus its greater-than-one length.

What these analyses show is the impact of career barriers on the movement of vacancies entering the network and how the movement of vacancies affects orderly career opportunities.

The twin impacts, barriers on vacancy chain lengths and vacancies on orderly career opportunities, can also be seen, perhaps even more dramatically, in Table VI, a frequency table showing the percentage of vacancies which occupied varying numbers of positions before exiting.

The percentage of vacancies occupying various numbers of positions is a rather direct indicator of the orderly career opportunities in

TABLE VI
Vacancies and Number of Positions Occupied

Oregon		N. S. W.		W. A.	
Number of Positions Occupied	Percent of Vacancies	Number of Positions Occupied	Percent of Vacancies	Number of Positions Occupied	Percent of Vacancies
1	62	1	51	1	35
2	27	2	26	2	20
3	6	3	13	3	17
4	3	4	4	4	13
5	2	5	3	5	0
		6	1	6	6
		7	1	7	5
		8	1	8	2
				9	1
				10	0
				11	1

the three school systems, because the longer the vacancy chain, the more positions a vacancy occupies, the more robust are the transitions from position to position.

For example, a vacancy which occupied 11 positions in W.A. resulted in the movement of ten principals, as shown below. The va-

School	Principal in 1974	Principal in 1975
Wilson Primary	Gurr, H. S. W.	Walsh, J. A.
Bungaree Primary	Walsh, J. A.	Hamilton, K. C.
Osborne Primary	Hamilton, K. C.	Ingram, J. R.
Harvey Primary	Ingram, J. R.	Wroth, D. G.
Carnarvon Primary	Wroth, D. G.	O'Hart, B. P.
Roselle Primary	O'Hart, B. P.	Hackett, G. C.
Walliston Primary	Hackett, G. C.	McGinnity, B. F.
West Field Park Primary	McGinnity, B. F.	Leaver, G. B.
Waranbro Primary	Leaver, G. B.	Smart, A. P.
West Kambalda	Smart, A. P.	Shepard, A. P.
Bruce Rock District High School	Shepard, A. P.	Richard, V. W.

cancy entered the network at Wilson Primary School at the close of the 1974 school year when H. S. W. Gurr resigned. It moved to Bungaree Primary School when J. A. Walsh took the principalship at Wilson Primary, and the vacancy kept moving down the line of schools shown above until it exited from the network from Bruce Rock District High School when V. W. Richard, from outside the network, became principal. In the process of moving through the 11 positions, the single vacancy permitted the movement of ten principals in the network.

As grand as that vacancy chain was, it is rather unfortunate that it did not pass through some of the schools in W.A. with joy giving names such as Useless Loop and Walkaway.

As seen in Table VI, the percentage of vacancies that occupied one and only one position ranges from 62 in Oregon to 35 in W.A. When a vacancy occupies only one position, it means that the position was either abolished or filled by someone who was not holding a position in the bounded set of positions, a newcomer. The number of entry points for newcomers varies according to the career barriers used. In Oregon, with its education barrier, all positions are entry points for newcomers. N.S.W. has four such entry points; higher officer, because appointments are made by invitation; Class III primary and central and secondary schools because becoming a principal in those schools requires no prior experience in the bounded set of positions. The percentage of vacancies in N.S.W. occupying one position is larger than it would be if entry points were fewer. W.A. has one less entry point than N.S.W.

In Oregon 62 percent of the vacated administrative positions are filled by newcomers. School administrators there are seemingly hard pressed, when not regulated by career barriers which guarantee promotion, in time, to demonstrate that they are deserving of filling a vacated post, and, as seen, they fare very poorly against newcomers, people with hoped for, but rather unknown, qualities and talents.

Several factors combine to make a newcomer more attractive than a veteran. Schools, as well as some other organizations, have been called "organized anarchies,"¹ meaning their technologies are unclear,

¹ See James G. March and Johan P. Olson, *Ambiguity and Choice in Organizations*. Oslo: Universitetsforlaget, 1976.

their preferences problematic, and participation in decision making is fluid because participants constantly change. One result is that school administrators cannot make a compelling case that their work and efforts in any given situation made any difference, either positive or negative. An experienced person who cannot make a compelling case regarding his or her work is not a very attractive candidate for a vacated post. Also, Waller has pointed out that among school administrators, "Opportunities for becoming unpopular, to the point, almost, of infamy, are numerous, but opportunities for gaining friends are few."²

School administrators cannot make a compelling case about their performance records, because of the organized anarchical features of schools and school systems, and attached to them are many detractors and very few supporters. It is almost as if school administrators automatically acquire a tainted record once in the occupation. They do not fare well at all in competition with strangers, as shown by the Oregon data. Their orderly career opportunities are low when their careers are not regulated by barriers which guarantee promotion, in time.

² Willard Waller, *The Sociology of Teaching*. New York: John Wiley and Sons, Inc., 1932, p. 100.

Orderly Career Opportunities and Regeneration Rates

Unless a vacancy exits from a network with a position which is abolished, it always permits a newcomer, one who has not previously held a post in the network, to take up a post in the network. As veterans leave, the vacancies they create bring in newcomers. Thus, regeneration of personnel is continuous. It is through the process of regeneration that organizations survive the degeneration of the organization's members.

Remarkable as it is that regeneration occurs in organizations, it is little remarked upon except casually by referring to the "changing of the guard," or the "Young Turks," and is examined even less frequently.¹

¹ Those who have treated either regeneration or its organizational consequences include V. Pareto, *The Rise and Fall of the Elites*. Totowa, NJ: The Bedminster Press, Inc., 1968; Pitirim A. Sorokin, *Society, Culture, and Personality*. New York: Harper & Brothers Publishers, 1947, pp. 415-422; Karl Mannheim, *Essays on the Sociology of Knowledge*. New York: Oxford University Press, 1952, pp. 276-322; Norman Ryder, "The Cohort in the Study of Social Change," *American Sociological Review*, 30:843-861, December, 1965; Arthur Stinchcombe, et., "Demography of Organizations," *American Journal of Sociology*, 75:221-229, November, 1968; and James D. Thompson and Kenneth McNeil, "Regeneration of Social Organizations," *American Sociological Review*, 36:624-637, August, 1971.

The rate of regeneration is not without consequences in a network. Under rapid regeneration rates, much effort is drained into recruiting and training; norms and work routines are jeopardized, and socialization of newcomers often falls to neophytes. When regeneration rates are slow, traditional ways of doing things are little questioned, organizational means become ends, and the question of why something is done a certain way evokes the classic response, "I don't know, we've always done it that way." A company of strangers wallows in chaos, and a company of veterans becomes stultified and stagnated.

REGENERATION RATES

The rate at which networks regenerate varies widely. The regeneration rate of a company of soldiers under battle conditions is lamentably fast, with regeneration often taking place in a matter of weeks. By comparison, regeneration occurs in both the U.S. Supreme and the Australian High Court at an infinitely slower rate.

Two factors are instrumental in setting regeneration rates in bounded sets of positions. One factor is the growth or decline rate of the number of positions in the bounded set. The other factor bears on the nature of the occupation involved and specifically on what could be termed the holding power of the occupation.

Under conditions of organizational growth, regeneration is rapid because newly created positions add vacancies to those caused by normal retirement and resignation, and thus bring in extra newcomers. Under conditions of organizational decline, regeneration is slow because vacated positions are often eliminated and newcomers are barred.

Growth and decline of the number of positions in a network affect the number of newcomers who enter and thus regeneration rates. Regeneration rates are also profoundly affected by the rates at which employees leave a bounded set of positions.

There are three means of exit from a bounded set of positions: *retirement* at the end of a career, the time being dictated by custom or regulation; *voluntary resignation* prior to end of a career, when continuing to hold a post in the network loses out to a more desirable option, be it the same work in a different network, starting a new career in a new occupation, or sailing off into the sunset; and *involun-*

tary resignation such as occurs when someone is fired, a soldier is killed, a public office holder fails to get re-elected, an athlete's contract is terminated because he or she is too old to compete, or a boy soprano goes through puberty.

Bounded sets of positions which are subject to involuntary resignations are subject to relatively rapid regeneration rates. For example, no member of the 1960 U.S. Olympic Women's 4 x 100 meter Medley Relay Swimming Team was a member of the team in 1964, and no member of the 1964 team was a member of the 1968 team.² Half of the members of the 1968 Australian Test Cricket side who played England for the Ashes were not members of the side in 1972.³ Among public officials, the regeneration rate is, to a considerable extent, determined by the term of office specified by election rules. U.S. Senators are elected for six-year terms and the Senate regenerates more slowly than the House of Representatives in which members are elected for two-year terms.

When not especially subject to involuntary resignations, those bounded sets of positions most subject to voluntary resignation of members would have the most rapid regeneration rates. Seemingly, voluntary resignation rates would be related to two factors. One is the extent to which the skill prerequisite to entry into, or developed in the network, is transferable. When skills are widely used in a society, alternative employment options are many. An accountant's skills are needed in all business firms and industries, both public and private. An anesthetist, however, can rarely find employment outside the hospital operating room. Thus, in networks using highly transferable skills, relatively numerous resignations should result, producing relatively rapid regeneration rates.

The second factor which would seemingly affect resignation rates is prestige, prestige of the network or of the occupation represented in it. High prestige would seemingly exercise great holding power over network members. High prestige would make other employment

² See Pat Besford, *Encyclopedia of Swimming*. New York: St. Martin's Press. 1971, p. 130.

³ See D. Foster and P. Arnold. *100 Years of Test Cricket: England vs. Australia*. London: Hamlyn 1977, p. 172.

options less desirable. Resignation rates might be found to roughly conform to those depicted in Table VII.

Regeneration and Opportunity

Regeneration rates are affected by growth and decline in network positions, by occupational characteristics, transferability of skill and prestige of occupation, which bear on the propensity to leave the occupation, involuntarily or voluntarily.

Regeneration rates, in turn, affect orderly career opportunities. Rapid regeneration rates provide high orderly career opportunities

TABLE VII
Resignation Rates

		Prestige of Occupation or Network	
Transferability of skill	High	High	Low
		Mixed	High
	Low	Low	Mixed

for those who persist, and slow regeneration rates have the opposite effect.

In examining the regeneration rates in the three school systems, the rates, following Thompson,⁴ will be expressed here in terms of a time lapse, years or fractions thereof, until half of the members of a network have left the network and have been replaced by newcomers. The lapse of time forward from year one, say, until the ratio of veterans (those who held posts in year one), to newcomers (those who did not hold posts in year one), reaches one will be the regeneration rate.

The regeneration rates in Oregon were computed by a straight-forward count of people. Those occupying positions in the network in 1966 were considered veterans and the list of veterans was compared to the lists of occupants of positions in the network for succeeding years until the date arrived at which half of the veterans had left the network and had been replaced by newcomers, those who did

⁴ Thompson and McNeil, *op. cit.*

not hold positions in the bounded set of positions in 1966. The regeneration rates in N.S.W. and W.A. were determined by projections of the future based on regeneration rates over a few years. In both N.S.W. and W.A. those occupying positions in the networks in 1974 were considered veterans, those holding positions in succeeding years were considered newcomers. The rosters of veterans was compared with the roster of position occupants in 1975, 1976, and 1977. This comparison yielded, for each year, the number of veterans who left the network as well as the mean leaving rate based on the three readings. Likewise, the three readings yielded a mean entry rate for newcomers. These means, the yearly loss of veterans, and the yearly gain of newcomers, with the latter being augmented by the number of newcomers required by the creation of new positions, which was based on growth rates of the networks, were projected forward until these projections showed that half of the veterans would leave the network and be replaced by newcomers.

In the entire networks, the regeneration rate in Oregon in 4.6 years, 4.5 in N.S.W. and 5.0 in W.A. As a comparison, Thompson found the regeneration rates of academic staffs at Vanderbilt and the University of Tennessee to be 5.0 years. However, the growth rates of the academic staffs were large, about five percent per year, which speeds up regeneration.⁵ Had the growth rates in the three school systems been anywhere near that high, the regeneration rates would have been even more rapid.

Such rapid regeneration rates, undoubtedly attributable to numerous resignations, suggest that little prestige is accorded the occupation of school administration, or that the skills that go along with the occupation are highly transferable.

These rapid regeneration rates suggest voracious appetites, so to speak, of the school systems for fledgling administrators. The manpower needs in Oregon are 667 newcomers every 4.6 years and the N.S.W. school system requires 923 newcomers to the administrative ranks every 4.5 years. Needless to say, the training costs associated with such rapid regeneration rates are high, as are other associated costs.

⁵ Thompson and McNeil, *op. cit.*, p. 626.

Table VIII shows, position by position, the regeneration rates in the three school systems.

Most notable about the rates is the lack of variation among positions in Oregon, and the rather sizable variations in the other two school systems. Likewise notable are the great differences in regeneration rates in the various positions. It is clear that once someone attains position 11 (inspector resident in region) in N.S.W., he or she is likely to be in that position for a long time. It is also clear that once someone attains position 10 (Class II district high school principal) in W.A., he or she is not going to be in that position long. In a sense, those in position 11 in N.S.W. might represent a company of veterans and those in position 10 in W.A. might represent a company of strangers. One can only speculate about the impact of the long regeneration rate on the work routines in position 11 and the impact of the rapid rate on the work routines in position 10. Similarly, one can only wonder

TABLE VIII
Regeneration Rates

Oregon		N. S. W.		W. A.	
Position	Regeneration Rate	Position	Regeneration Rate	Position	Regeneration Rate
1	4.5 yrs	1	1.5 yrs.	1	1.5 yrs.
2	4.0 yrs	2	1.0 yrs.	2	-
3	4.5 yrs.	3	1.0 yrs.	3	1.5 yrs.
4	3.5 yrs.	4	2.0 yrs.	4	1.5 yrs.
5	5.5 yrs.	5	4.2 yrs.	5	1.5 yrs.
		6	-	6	3.5 yrs.
		7	4.1 yrs.	7	6.2 yrs.
		8	5.4 yrs.	8	2.5 yrs.
		9	6.1 yrs.	9	1.6 yrs.
		10	5.0 yrs.	10	1.5 yrs.
		11	13.3 yrs.	11	2.7 yrs.
		12	8.5 yrs.	12	4.2 yrs.
		13	3.8 yrs.	13	2.7 yrs.
		14	3.1 yrs.	14	2.1 yrs.
		15	1.8 yrs.		
		16	3.3 yrs.		
		17	2.8 yrs.		
		18	3.2 yrs.		
		19	1.8 yrs.		

what it means to teachers and students in Class II district high schools in W.A. to be greeted by and to socialize a new principal nearly every year.

Also notable about the rates shown in Table VIII is the rapidity of regeneration in the principal positions (3-5 in Oregon, 12-19 in N.S.W. and 7-14 in W.A.), that rapidity being most notable in N.S.W. and W.A. Not shown in the table is the regeneration rate for all principals in Oregon, 5.1 years, for all principals in N.S.W., 4.2 years, and for all principals in W.A., 5.4 years. Given these rapid regeneration rates, it appears that the schools are being run by amateurs, that the principals in the three systems are hardly in position long enough to learn the job, let alone become professional at it.

In addition to showing the widely fluctuating regeneration rates, viewed position by position in at least N.S.W. and W.A., the table reveals what has been called the "relatively sedentary center of gravity"⁶ of the three school systems, the sedentary center of gravity being the strata within the systems with the slowest regeneration rates. In Oregon the most stable level is the position of primary school principal, in N.S.W. it is positions 11 (inspector resident in region) and 12 (regional secondary inspector), and in W.A. it is position 7 (senior high school principal). It is within the "relatively sedentary centers of gravity which an organization secures its meaning and and continuity of existence."⁷

Regarding career opportunities, the rapid regeneration rates reveal that the factor of persistence, or simply remaining a member of the network, counts most in the pursuit of an orderly career. Given the rapid regeneration rates and the bountiful vacancies, only those whose work is a totally uninterrupted series of gross blunders will not advance smartly.

⁶ Pitirim A. Sorokin, *Society, Culture and Personality*. New York: Harper and Brothers Publishers, 1947, p. 416. Sorokin, in very broad sweeps, addressed the issue of "differential mobility of various strata of a group," and cited nations as representing institutions whose center of gravity lies in the lower strata, governmental institutions as representing that class of organizations wherein the center of gravity lies in the lower-upper stratum or the upper-middle stratum, and asserted that "the greater proportion of existing institutions or organizations have their center of gravity at the top of their pyramid."

⁷ *Ibid.*, p. 416.

Orderly Career Opportunities and Growth Rates

Not only are orderly career opportunities affected by career barriers, vacancies, vacancy chain lengths, and regeneration rates, they are also affected by rates of growth or decline in the number of positions in the network. Under conditions of growth, orderly career opportunities increase, and under conditions of decline, they decrease. Growth speeds the movement of people from one position to another and decline slows it down.

Comparisons of orderly career opportunities, uncorrected for varying growth or decline rates, such as those in Chapter 4, are valid only when such rates are identical or nearly so. As stated earlier, the three school systems were experiencing highly similar rates: the number of positions in the network in Oregon declined by an average of .25 percent per year, and the number of positions in W.A. and N.S.W. increased, respectively .65 and .56 percent per year.

To demonstrate the impact of growth, stability, and decline in the number of positions on orderly career opportunities, three hierarchies are shown, each consisting of, for purposes of illustration, Class I, II, and III schools with five schools in each class. Each school is listed in alphabetical order in its class. Each school has a principal

represented by a number indicating seniority. The principal of school A in Class I is number 1, the principal of school B in Class I is number 2, and so on. Promotion is governed by seniority. A newcomer always takes the lowest school in the lowest class and has the largest seniority number. Exit from the hierarchies is on the basis of seniority; the most senior people retire first. Exit rates are the same in each hierarchy: ten percent retire each year. The growth hierarchy grows at the rate of ten percent per year in each class of schools. The stable hierarchy is stable, and the decline hierarchy declines at the rate of ten percent per year in each class of schools. In the decline hierarchy, as positions are eliminated, the last principal in is the first out.

Calculations for added or lost positions and for retirements are rounded to the whole integer with the rounded-off fraction, either negative or positive, carried forward into the calculations for the next year.

Table IX shows the results of applying the above rules in years 3 and 5 in the growth, stable, and decline hierarchies, and makes clear the impact of growth rates on orderly career opportunities. Note principal 15, the lowest in seniority in year 1. In year 3, principal 15 is in a Class I school in the growth hierarchy, in a Class II school in the stable hierarchy, and still in a Class III school in the decline hierarchy. By year 5, principal 15 had advanced two classes in the growth hierarchy, one class in the stable hierarchy, and had not advanced in the decline hierarchy.

The illustration clearly shows the impact of growth, stability, and decline in the number of positions in a network on orderly career opportunities. Growth increases and decline diminishes orderly career opportunities.

From 1950 until recently, education could accurately be described as a growth public service. In the U.S., the number of students enrolled in elementary and secondary schools dramatically increased from 1950 to 1970, with enrollment rising from 28.7 million in 1950 to 51.3 million in 1970.¹ This 79 percent increase in the number of students naturally led to an even more dramatic increase in the number of line administrative positions.

¹ U.S. Bureau of the Census, *Statistical Abstracts of the United States: 1976*, (97th Edition) Washington, D.C., 1976, p. 115.

TABLE IX
Growth, Stability, Decline and Orderly Career Opportunities

Growth Hierarchy				Stable Hierarchy				Decline Hierarchy			
Year 3		Year 5		Year 3		Year 5		Year 3		Year 5	
Position	Occupant	Position	Occupant	Position	Occupant	Position	Occupant	Position	Occupant	Position	Occupant
Class I		Class I		Class I		Class I		Class I		Class I	
A	5	A	9	A	5	A	7	A	5	A	7
B	6	B	10	B	6	B	8	B	6	B	8
C	7	C	11	C	7	C	9	C	7	C	9
D	8	D	12	D	8	D	10	D	8	Class II	
E	9	E	13	E	9	E	11	Class II		A	10
F	10	F	14	Class II		Class II		A	9	B	11
Class II		G	15	A	10	A	12	B	10	C	12
A	11	Class II		B	11	B	13	C	11	Class III	
B	12	A	16	C	12	C	14	D	12	A	13
C	13	B	17	D	13	D	15	Class III		B	14
D	14	C	18	E	14	E	16	A	13	C	15
E	15	D	19	Class III		Class III		B	14		
F	16	E	20	A	15	A	17	C	15		
Class III		F	21	B	16	B	18	D	16		
A	17	G	22	C	17	C	19				
B	18	Class III		D	18	D	20				
C	19	A	23	E	19	E	21				
D	20	B	24								
E	21	C	25								
F	22	D	26								
		E	27								
		F	28								
		G	29								

The number of principals in the U.S. increased by 133 percent in the face of the 79 percent increase in the number of students during those two decades. In 1949-50 there were 39,000 principals and in 1969-70 there were 91,000 principals.² The table on the preceeding page gives a vantage point on how high orderly career opportunities would be under such conditions of dramatic growth.

Today, however, education can no longer accurately be described as a growth public service. Enrollment has declined since 1970. As opposed to 51.3 million students in 1970, there were 50.1 million elementary and secondary students in 1975 and the enrollment has been projected to be 46.1 million in 1985.³

In the abstract, the decline in enrollment of 1.2 million between 1970 and 1975 might seem trivial; however, the combined enrollments in Oregon, N.S.W. and W.A. total 1.5 million. The decline in enrollment projected between 1970 and 1985, 4.2 million, is more than eight times the number of students enrolled in Oregon. Needless to say, the decline in enrollment will mean a decline in the number of line administrative posts. Again, Table IX permits a perspective of the impact of a decline in the number of positions in a network on orderly career opportunities.

DECLINE AND THE BUREAUCRATIC CRAWL

With the decline in the number of posts, probabilities for advancement and orderly career opportunities will shrink. Rate of advancement will slow and each move from one hierarchical level to another will take longer. The slow bureaucratic crawl will set in.⁴

² U.S. Department of Health, Education, and Welfare, National Center for Education Statistics, *Digest of Educational Statistics 1973*, Washington, D.C.: U.S. Government Printing Office, 1974, pp. 34-35.

³ U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Projections of Education Statistics to 1985-86*, Washington, D.C.: U.S. Government Printing Office, 1977, p. 15.

⁴ Describing government bureaus, Anthony Downs, in his Rand Corporation study said: "... a decline, stagnation, or just slower than average growth tends to reduce the opportunity for promotion within the bureau to a level below that prevailing in comparable organizations. This will usually serve notice for climbers to depart ... Also, those who have reached high positions in the bureau will lose hope of climbing much higher, and will tend to become conservers instead of climbers. Such changes reduce the proportion of climbers in the bureau and increase the proportion of conservers in key positions. As a result, the entire

As this happens the circumstances which create the problems in the management of the flow of employees in educational organizations detailed in Chapter I will not disappear. The total workforce might become more stable, but the students will remain unstable in their number and location, the service will still need to be delivered wherever students are, and union contracts and tenure laws will still have impact on the management of the flow of employees. These circumstances will still exist, but the decline in the number of positions, and the corresponding decline in orderly career opportunities will create an additional concern related to the manpower flow.

As orderly career opportunities diminish and movement from one job to the next becomes a crawl, the length of time spent in a job in the hierarchy will, of course, lengthen. While a long period of time spent in one job might have negative emotional ramifications for many administrators, long tenure in office also has serious negative organizational consequences.⁵

Given the decline and the resulting long length of time administrators will spend in one job, attention will need to be given to schemes to revitalize those waiting in place.

bureau will shift toward greater conservator dominance, thereby reducing its ability to innovate and the desire to expand its functions. Then, whenever opportunities for innovation or function-expansion do present themselves, the bureau will be less able, or willing, to take advantage of them . . . Thus, once a bureau starts to shrink, . . . it sets in motion forces that tend to make it shrink even faster . . ." *Inside Bureaucracy*. Boston, MA: Little, Brown and Company, 1967, pp. 13-14.

⁵ School administrators write at length on the detrimental effects on their performance of staying in a position over a long period of time. See T. H. Bell, *The Prodigal Pedagogue*. New York: Exposition Press, 1955, p. 149, as an example.

For empirical data of the negative effect see Neal Gross and Robert E. Herriott, *Staff Leadership in Public Schools*. New York: John Wiley & Sons, Inc., 1965, p. 73. Also see Ralph Katz, "Job Longevity as a Situational Factor in Job Satisfaction," *Administrative Science Quarterly*, Vol. 23, p. 219, June 1978. Therein Katz concludes: "With increasing job longevity . . . employees' perceptions of the present and of the future may become increasingly impoverished; that is, employees may begin to question warily the meaningfulness of what they are doing and where it may lead . . . individuals gradually adjust to substantial job tenure by defining their situations less in terms of personal influence and interactional features, such as tangible rewards and good interpersonal and supervisory relationships."

Orderly Career Contingencies

Hard work, perseverance, skill, talent, creativity, and similar attributes are evoked and attached to those who have successful careers. They are seen as brighter than bright, quicker than quick, and smarter than smart. No matter what influence such attributes have on the tracing out of a career, the evoking of them is comforting and confirms a belief in justice.

Luck is also evoked and attached to those who have successful careers. They are seen as being in the right place at the right time, and their success is seen as accounted for by pure chance.

Luck and hard work, as themes competing for explaining career success, do not merge easily. The hard work theme is most prevalent in autobiographical accounts, while the luck theme is systematically treated only by observers.¹

Beyond hard work and luck, however, there are immutable factors

¹ See Harrison C. White, "Uses of Mathematics in Sociology." In J. C. Charlesworth, *Mathematics and the Social Sciences*. Philadelphia: The American Academy of Political and Social Science, 1963; Karl W. Deutsch & William G. Madow, "A Note of the Appearance of Wisdom in Large Bureaucratic Organizations," *Behavioral Science*, 6:72-78, 1961; Lester C. Thurow, *Generating Inequality: The Distribution Mechanisms of the U.S. Economy*. New York: Basic Books, 1975; and James C. and James G. March, "Almost Random Careers: The Wisconsin Superintendency, 1940-1972," *Administrative Science Quarterly*, 22:377-409, September, 1977.

which bear on the tracing out of a career in an organization. The factors are not manipulatable by individuals tracing out an orderly career. They are features of occupations and organizations. Career barriers, vacancies, vacancy chain lengths, and position abolishment are the immutable factors which bear on orderly careers. These factors and their relationships are shown in figure 2.

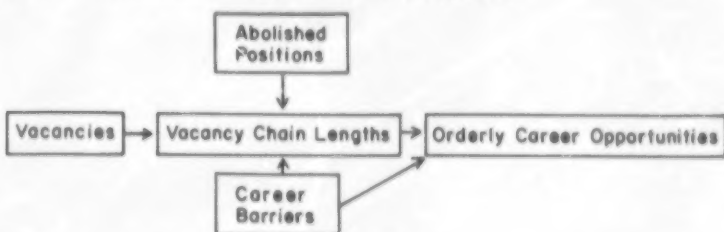


FIGURE 2

Orderly Career Contingencies

First, it is clear that vacancies are indispensable to orderly career opportunities. Movement from one position to another is possible only if a vacancy exists. No vacancies, no movement, no career progression. Vacancies and vacancies alone permit career advancement.

Vacancies arise from retirements and resignations as well as from the creation of new positions. When organizations are growing and adding new positions and at the same time are experiencing high resignation and retirement rates, vacancies abound and orderly career opportunities are high.

Second, once created by a retirement or a new position, a vacancy has mobility properties. If person 1 retires from job A, job A can then be said to be occupied by a vacancy. If person 2 moves from job B to job A, the vacancy moves from job A to job B. In this manner vacancies move down the hierarchy while individuals move up the hierarchy. Ordinarily, once a vacancy enters a network it moves, position by position, down the hierarchy from its point of entry to the lowest position in the hierarchy. In so moving it occupies a number of positions. The more positions it occupies, the more people advance in the hierarchy. Thus, vacancies which have long chain

lengths enhance, and vacancies which have short chain lengths depress, orderly career opportunities.

Third, the length of a vacancy chain, a prime factor in determining orderly career opportunities, is influenced by the career barriers used in a bounded set of positions. The influence is of two types: career barriers can cause a vacancy to be ejected prematurely from the network and can cause vacancies to leap over positions in their descent.

Seniority barriers make networks impermeable except at the lowest position. The use of education, experience, and performance rating barriers render a bounded set of positions permeable at positions above the lowest position. When a bounded set of positions is permeable, vacancies can be prematurely ejected. If vacant position A is filled by someone from outside the network, the vacancy leaves the network. It is prematurely ejected. It does not move down the hierarchy from the point of entry to the lowest position in the hierarchy, so the opportunity of career advancement of those individuals in positions below position A is lost.

Not only do education, experience, and performance rating barriers potentially cause vacancies to be prematurely ejected from the network, they also cause vacancies to leap over positions in their otherwise orderly descent of the hierarchy. This is because education, experience, and performance rating barriers only establish eligibility pools and a member of the pool can leap over one or more positions if no position holder is in the eligibility pool. Vacant position A could be filled by a person holding position D because no one in positions B and C had the prescribed education, experience, or performance rating. In that case the vacancy occupying position A would move to position D, leaping over positions B and C. The leaping over of positions by vacancies, permitted by education, experience, and performance rating barriers, but not by seniority barriers, naturally shortens the chain length of the vacancy and reduces orderly career opportunities.

Fourth, while career barriers influence the movement of vacancies once they enter a bounded set of positions, and, therefore, have an indirect impact on orderly career opportunities, career barriers have a direct impact on orderly career opportunities. The direct impact is that with some career barriers an individual's competitive advan-

tage will always peak to a maximum competitive advantage. With others an individual's competitive advantage will not peak. Seniority is a career barrier that provides for the peaking of an individual's competitive advantage. Under seniority rules each person eventually has seniority over all others in the position, so his or her turn for promotion eventually arrives. Other career barriers, education, experience, and performance ratings, unless coupled with seniority, do not allow for the peaking of an individual's competitive advantage. They restrict, however finely, the pool of the eligible, but do not select the one person most eligible. They permit gaining of advantage over those not in the pool, but do not permit gaining within the pool.

Career barriers directly affect orderly career opportunities in that seniority, when used as a barrier, guarantees advancement in time, while education, experience, and performance rating, when used as barriers, do not provide a guarantee.

Fifth, abolishing positions has an impact on the length of vacancy chains, which, in turn, affect orderly career opportunities. Whenever a position is vacated and then abolished, as often happens with higher level positions, the vacancy leaves the network along with the position, permitting no one below that position to move up in the hierarchy because of the loss of the vacancy.